As filed with the Securities and Exchange Commission on July 6, 2020.

Registration No. 333-239321

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Amendment No. 1
to
FORM S-1
REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

Poseida Therapeutics, Inc.
(Exact name of registrant as specified in its charter)

Delaware	2836	47-3898435
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

Poseida Therapeutics, Inc.
9390 Towne Centre Drive, Suite 200
San Diego, CA 92121
(858) 779-3100
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

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Chief Executive Officer
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Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this registration statement.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. ☐

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☒
Emerging growth company	☒		

If an emerging growth company, indicate by check mark if the registrant has not elected to use the extended transition period for complying with any new or revised financial accounting standards provided in Section 7(a)(2)(B) of the Securities Act. ☐

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Amount to be Registered(1)	Proposed Maximum Offering Price Per Share(2)	Proposed Maximum Aggregate Offering Price(1)(2)	Amount of Registration Fee(3)
Common Stock, $0.0001 par value per share	11,500,000	$16.00	$184,000,000	$23,884

(1) Includes 1,500,000 shares of common stock that the underwriters have the option to purchase.
(2) Estimated solely for the purpose of calculating the registration fee in accordance with Rule 457(a) under the Securities Act of 1933, as amended.
(3) The Registrant previously paid $14,927.

The Registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment that specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

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The information in this preliminary prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any state or other jurisdiction where the offer or sale is not permitted.

Subject to Completion
Preliminary Prospectus dated July 6, 2020

PROSPECTUS

10,000,000 Shares

Common Stock

This is an initial public offering of shares of common stock of Poseida Therapeutics, Inc. We are selling 10,000,000 shares of our common stock.

Prior to this offering, there has been no public market for our common stock. It is currently estimated that the initial public offering price will be between $14.00 and $16.00 per share. We have applied to list our common stock on the Nasdaq Global Select Market under the symbol "PSTX."

We are an "emerging growth company" as defined under the federal securities laws and, as such, we have elected to comply with certain reduced public company reporting requirements for this prospectus and may elect to do so in future filings.

Investing in our common stock involves risks that are described in the "Risk Factors" section beginning on page 16 of this prospectus.

	Per Share	Total
Initial public offering price	$	$
Underwriting discounts and commissions(1)	$	$
Proceeds, before expenses, to us	$	$

(1) See the section titled "Underwriting" for additional information regarding compensation payable to the underwriters.

To the extent that the underwriters sell more than 10,000,000 shares of common stock, the underwriters have the option to purchase up to an additional 1,500,000 shares of common stock from us at the initial public offering price less the underwriting discounts and commissions.

Neither the Securities and Exchange Commission nor any other state securities commission has approved or disapproved of these securities or passed on the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The underwriters expect to deliver the shares of common stock to purchasers on or about , 2020.

BofA Securities **Piper Sandler** **William Blair**

Prospectus dated , 2020

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Neither we nor the underwriters have authorized anyone to provide any information or to make any representations other than those contained in this prospectus or in any free writing prospectuses prepared by or on behalf of us or to which we have referred you. We and the underwriters take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. This prospectus is an offer to sell only the shares offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. The information contained in this prospectus or in any applicable free writing prospectus is current only as of its date, regardless of its time of delivery or any sale of shares of our common stock. Our business, financial condition, results of operations and prospects may have changed since that date.

Neither we nor the underwriters have done anything that would permit this offering or possession or distribution of this prospectus or any free writing prospectus we may provide to you in connection with this offering in any jurisdiction where action for that purpose is required, other than in the United States. You are required to inform yourselves about and to observe any restrictions relating to this offering and the distribution of this prospectus and any such free writing prospectus outside of the United States.

PROSPECTUS SUMMARY

This summary highlights certain information contained elsewhere in this prospectus. This summary is not complete and does not contain all of the information you should consider in making your investment decision. You should read the entire prospectus carefully before making an investment in our common stock. You should carefully consider, among other things, our consolidated financial statements and the related notes included elsewhere in this prospectus and the sections titled "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations." Except as otherwise indicated herein or as the context otherwise requires, references in this prospectus to "Poseida," "the company," "we," "us," and "our" refer to Poseida Therapeutics, Inc. and our consolidated subsidiaries.

Overview

We are a clinical-stage biopharmaceutical company dedicated to utilizing our proprietary gene engineering platform technologies to create next generation cell and gene therapeutics with the capacity to cure. We have discovered and are developing a broad portfolio of product candidates in a variety of indications based on our core proprietary platforms, including our non-viral piggyBac DNA Modification System, Cas-CLOVER site-specific gene editing system and nanoparticle- and AAV-based gene delivery technologies. Our core platform technologies have utility, either alone or in combination, across many cell and gene therapeutic modalities and enable us to engineer our wholly-owned portfolio of product candidates that are designed to overcome the primary limitations of current generation cell and gene therapeutics.

Within cell therapy, we believe our technologies allow us to create product candidates with engineered cells that engraft in the patient's body and drive lasting durable responses that may have the capacity to result in single treatment cures. Our chimeric antigen receptor T cell, or CAR-T, therapy portfolio consists of both autologous and allogeneic, or off-the-shelf, product candidates. We are advancing a broad pipeline with a plan to have six CAR-T product candidates in the clinic in 2021 in both hematological and solid tumor oncology indications. Our most advanced product candidate, P-BCMA-101, is an autologous CAR-T which we are currently evaluating in a potentially registrational Phase 2 clinical trial, which we believe, if successfully completed, could support a submission seeking accelerated regulatory approval, and an expanded Phase 1 clinical trial for the treatment of patients with relapsed/refractory multiple myeloma. In these clinical trials, following discussions with the U.S. Food and Drug Administration, or FDA, P-BCMA-101 can be dosed on a fully outpatient basis, without the requirement to reserve an intensive care unit, or ICU. The FDA has indicated that if data from our Phase 2 clinical trial do not provide evidence sufficient for accelerated approval, additional clinical testing would be required, including potentially a randomized, controlled Phase 3 trial or trials. We are also currently enrolling patients in a Phase 1 clinical trial with our second autologous product candidate, P-PSMA-101, for the treatment of patients with metastatic castrate resistant prostate cancer, or mCRPC. We expect to file an investigational new drug application, or IND, for our first fully allogeneic CAR-T product candidate, P-BCMA-ALLO1, in late 2020 or early 2021 for patients with relapsed/refractory multiple myeloma, and have three additional allogeneic programs advancing toward anticipated IND filings in 2021, including P-MUC1C-ALLO1 and two Dual CAR allogeneic programs.

Within gene therapy, we believe our technologies have the potential to create next generation therapies that can deliver long-term, stable gene expression that does not diminish over time and may have the capacity to result in single treatment cures. We expect to file two INDs for our liver-directed gene therapy product candidates in orphan genetic diseases, including ornithine transcarbamylase, or OTC, deficiency and methylmalonic acidemia, or MMA, in late 2021 or early 2022 and 2022, respectively. We believe our proprietary gene engineering technologies have the potential to address the limitations of the transient nature of traditional gene therapies, thereby offering distinct advantages in liver-directed gene therapy. Furthermore, we believe that we have the potential to pursue multiple *in vivo* and *ex vivo* approaches in a wide array of cell types and tissues for non-liver-directed gene therapies.

Across our pipeline, we seek to leverage the unique aspects and capabilities of our core platform technologies to create cell and gene therapeutic product candidates that: (1) are differentiated by potent and durable activity and

tolerability, (2) may allow us to address indications that are not accessible with the current generation of cell and gene therapeutics, and (3) may allow for widespread patient accessibility enabling broader commercial adoption.

1. Differentiation based on potent and durable activity and tolerability:

Cell Therapy. Our non-viral piggyBac DNA Modification System allows us to design CAR-T product candidates that can not only deliver very large CAR-containing transgenes to T cells, but also generate CAR-T products that deliver a high percentage of early memory T cells, such as stem cell memory T, or T_{SCM}, cells. T_{SCM} cells are a stem cell form of T cells that engraft, self-renew and mature into every T cell subtype, including the effector T, or T_{EFF}, cells, which are tumor killing cells. We believe delivering a high percentage of T_{SCM} cells will drive more gradual tumor killing, thereby inducing less inflammatory cytokine response and improving the tolerability profile of our CAR-T product candidates relative to those of existing CAR-T therapies. Conceptually, through these T_{SCM} cells, we are able to deliver a predominantly self-renewing CAR-T "prodrug" that can engraft and produce unlimited T_{EFF} "drug", an approach that potentially results in more potent activity and duration of response.

Gene Therapy. PiggyBac confers many potential advantages compared to current gene therapies that rely on traditional viral-based delivery methods. In preclinical studies, piggyBac transgene delivery exhibited high-level, long-term, stable gene expression and allowed for permanent gene integration into DNA. In contrast, traditional viral vectors used for *in vivo* gene therapy, such as adeno-associated virus, or AAV, which is a virus that can be engineered to deliver DNA to target cells, when used alone are unable to permanently integrate into DNA and thus result in transient therapeutic transgene expression, which decreases over time. PiggyBac's ability to deliver high levels of stable integration and therapeutic transgene expression may also enable lower dosing when used in combination with AAV. Furthermore, in our preclinical studies the controlled integration of piggyBac has been shown to be non-mutagenic and non-oncogenic, which we believe makes it better suited as a delivery vehicle than AAV. As compared to nanoparticle alone-based delivery approaches, which similar to AAV alone approaches are transient in nature, nanoparticle combined with piggyBac may result in integration and stable therapeutic transgene expression and may also obviate the immunogenicity issues that are often associated with viral-based delivery methods.

2. Ability to address indications currently inaccessible by cell and gene therapeutics:

Cell Therapy. We believe the ability of our CAR-T product candidates to engraft and produce a potentially unlimited number of T_{EFF} cells is a critical advantage that may allow the field of CAR-T to move beyond hematological tumors and into solid tumors, an area historically limited due to the lack of persistence and durability of therapeutic cells needed to produce a clinical impact.

Gene Therapy. We are utilizing advantages that we have engineered in our piggyBac, nanoparticle and AAV-based gene delivery technologies to potentially overcome many of the limitations of current *in vivo* gene therapies. PiggyBac's ability to permanently integrate into DNA enables us to extend our reach into diseases associated with many tissues of the body that contain either dividing or non-dividing cells, a feature not available to transient viral-based delivery methods. Additionally, our potential to enable durable gene expression within tissues with rapidly dividing cells should enable us to pursue the entire spectrum of genetic diseases including many indications within the pediatric population.

3. Widespread patient accessibility enabling broader commercial adoption:

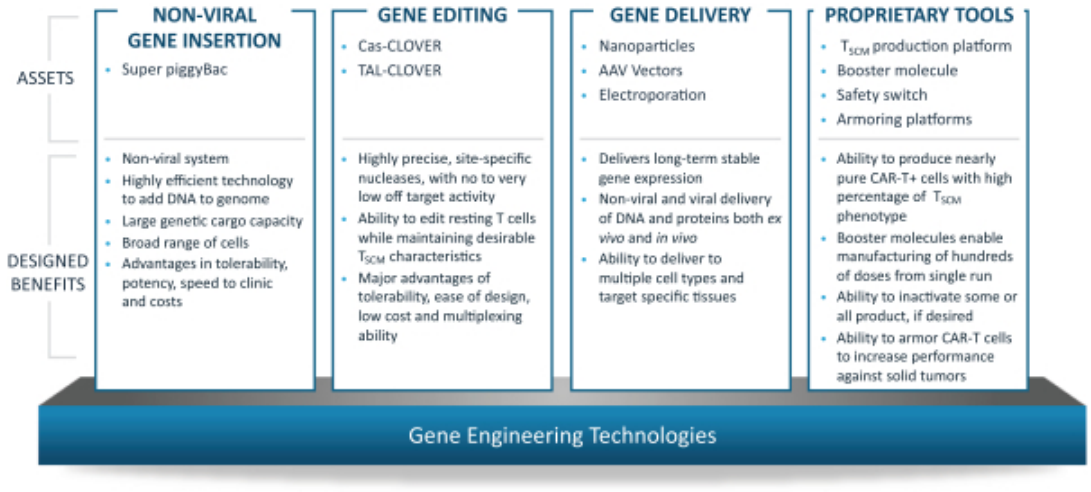
Cell Therapy. CAR-T treatments have faced both cost and safety challenges. Our engineering of proprietary booster molecules allows us to generate hundreds of doses from a single manufacturing run in our fully allogeneic CAR-T program. We believe this will lead to a significant reduction in costs to levels in the range of traditional biologic therapeutics in oncology. Additionally, piggyBac is intrinsically more cost effective than historical CAR-T methods as it utilizes nucleic acids, DNA and RNA produced using good manufacturing practices, or GMP, which are faster and cheaper to produce than GMP virus. Our focus on T_{SCM}, first initiated in

our autologous CAR-T product candidates, offers potential tolerability benefits and has demonstrated our potential ability to limit cytokine release syndrome, or CRS, and neurotoxicity that has limited the broad commercial adoption and utility of existing autologous CAR-T therapeutics. As a result of its tolerability profile and following discussions with the FDA, our potentially registrational Phase 2 clinical trial can be dosed on a fully outpatient basis, which we believe will also support broader adoption, if approved.

Gene Therapy. PiggyBac's ability to permanently integrate into the DNA yields the potential to provide more durable responses within gene therapy for many diseases that current viral-based approaches are unable to address. Importantly, we believe piggyBac will drive our potential ability to deliver single treatment cures, overcoming the limitations of viral-based therapies related to tolerability and durability. PiggyBac in combination with AAV may enable lower dosing, thereby improving tolerability and reducing costs and, in future product candidates, nanoparticle delivery of piggyBac will eliminate the need for AAV and may further improve tolerability and reduce cost. We believe these characteristics will potentially yield significant commercial advantages and confer meaningful pharmacoeconomic benefits to payors potentially resulting in broader commercial success.

Our Proprietary Cell and Gene Engineering Platform Technologies

We have developed a proprietary suite of gene engineering technologies that have broad utility. The breadth and depth of our technology platforms fall into three primary categories: (1) non-viral gene insertion, (2) gene editing and (3) gene delivery, supported by additional proprietary tools, as summarized in the graphic below:



- ***Non-viral gene insertion***. Our proprietary, non-viral piggyBac DNA Modification System, which includes our Super piggyBac transposase enzyme, is highly efficient at stable gene insertion. It has a significantly larger genetic cargo capacity as compared to viral methods (potentially greater than 20x lentivirus), allowing for transgenes that include multiple chimeric antigen receptor, or CAR, and/or T cell receptor, or TCR, genes, and other cargo for specific treatment applications, making it a highly versatile platform. Importantly, piggyBac works in a wide variety of cell types, both dividing and non-dividing, including T cells, B cells, natural killer cells, hematopoietic stem cells, or HSC, induced pluripotent stem cells, primary hepatocytes and numerous other cell types giving it broad reach and applicability.

- ***Gene editing with precise specificity***. Our proprietary, highly precise Cas-CLOVER site-specific gene editing technology is easy to use, highly efficient and capable of multiplexing and has shown low to no off-target activity in our preclinical studies, which we believe provides a distinct tolerability advantage.

Importantly, in our cell therapies, it allows for the maintenance of the highly desirable T_{SCM} product composition in allogeneic product candidates. Both of our proprietary site-specific gene editing platforms, Cas-CLOVER, and a related technology called TAL-CLOVER, can also be used for *in vivo* gene therapies.

- ***Gene delivery***. We have numerous technologies and platforms for delivering DNA, RNA and proteins, including into cells both *ex vivo* and *in vivo*. These include nanoparticle technology, AAV technology, and both *ex vivo* and *in vivo* electroporation, which is a process by which we use a pulse of electricity to briefly increase the permeability of cells.

- ***Additional proprietary tools.*** We also have a number of other technologies and tools that have been developed for certain specific applications, including, amongst others: (1) improving the therapeutic index of our candidates through generation of product with highly desirable T_{SCM} characteristics, "armoring" to improve performance against solid tumors, or through a proprietary safety switch which can rapidly modify activity of the administered cells; and (2) optimizing expansion of gene-edited allogeneic cells without affecting their desirable T_{SCM} characteristics, enabling hundreds of doses from a single manufacturing run.

These broad platform technologies, when used in various combinations, enable us to pursue a wide array of therapeutic modalities and indications. We believe this component of our strategy and business model will be a core value driver for us over the long term.

Our Pipeline

Our broad and versatile set of proprietary platform technologies has allowed us to develop a deep pipeline of wholly-owned, novel product candidates with composition of matter protection through at least 2037. Our initial focus is on CAR-T for oncology and liver-directed gene therapy programs for rare diseases. The following table summarizes our current product candidate portfolio:

CAR-T for Oncology

Autologous Programs

Our autologous CAR-T product candidates are developed using our piggyBac DNA Modification System to modify a patient's own cells to treat his or her disease. Importantly, we intend to leverage all the learnings from our autologous programs to inform and improve our allogeneic programs.

P-BCMA-101

- Our most advanced product candidate, P-BCMA-101, is an autologous CAR-T targeting B cell maturation antigen, or BCMA. We are currently evaluating P-BCMA-101 in a potentially registrational Phase 2 clinical trial and expanded Phase 1 clinical trial for the treatment of patients with relapsed/refractory multiple myeloma in the outpatient setting.
- Interim results from our ongoing Phase 1 clinical trial of P-BCMA-101 are encouraging. We have seen favorable tolerability results with very low levels of CRS and almost no neurotoxicity. Based on the interim tolerability results observed in the Phase 1 clinical trial, we initiated our Phase 2 clinical trial on a fully outpatient basis. We have also observed strong response rates and duration of responses in the interim results from our Phase 1 clinical trial across all dose groups. Should data from our P-BCMA-ALLO1 program, which are anticipated to begin to be available in late 2020 or early 2021, meet our expectations, we would consider reallocating our efforts and resources to advancing our allogeneic program.
- The FDA granted Regenerative Medicine Advanced Therapy Designation in November 2018 and Orphan Drug Designation in May 2019 for the treatment of multiple myeloma.

P-PSMA-101

- Autologous CAR-T product candidate targeting prostate-specific membrane antigen, or PSMA, being developed to treat patients with mCRPC.
- In preclinical studies, P-PSMA-101 has demonstrated elimination of tumor cells to undetectable levels in 100% of animals, with only one incidence of a relapse in the low dose cohort. These data were generated in a preclinical model of mCRPC in which immuno-deficient mice were implanted with solid tumors comprised of a human mCRPC cell line. To our knowledge based on published literature, no other product candidate has shown complete solid tumor elimination in this preclinical model. Should P-PSMA-101 show promising efficacy in the clinic, we would likely accelerate our allogeneic version of this product candidate, P-PSMA-ALLO1.
- The IND for P-PSMA-101 was filed and we received authorization to proceed from the FDA. We subsequently initiated a Phase 1 clinical trial and dosed the first patient in May 2020.

Allogeneic Programs

Our fully allogeneic CAR-T product candidates are developed using well-characterized cells derived from a healthy donor as starting material and modified using our piggyBac and Cas-CLOVER gene editing technology to reduce or eliminate reactivity, with the goal of enabling treatment of potentially hundreds of patients from a single manufacturing run by leveraging our booster molecule technology. Doses could be cryopreserved and stored at treatment centers for future off-the-shelf use.

P-BCMA-ALLO1

- Allogeneic CAR-T product candidate targeting BCMA, being developed to treat relapsed/refractory multiple myeloma patients.
- We have designed P-BCMA-ALLO1 to be fully allogeneic, with genetic edits to eliminate or reduce both host-vs-graft and graft-vs-host alloreactivity.

- We anticipate an IND filing and initiation of a Phase 1 clinical trial in late 2020 or early 2021.

P-MUC1C-ALLO1

- Allogeneic CAR-T product candidate in preclinical development for multiple solid tumor indications. We believe P-MUC1C-ALLO1 has the potential to treat a wide range of solid tumors derived from epithelial cells, such as breast, colorectal, lung, ovarian, pancreatic and renal cancers, as well as other cancers expressing a cancer-specific form of the Mucin 1 protein, or MUC1C.
- P-MUC1C-ALLO1 was designed to leverage the learnings of our P-BCMA-ALLO1 program. We have designed P-MUC1C-ALLO1 to be fully allogeneic, with genetic edits to eliminate or reduce both host-vs-graft and graft-vs-host alloreactivity.
- We have demonstrated the elimination of tumor cells to undetectable levels in two preclinical models of breast cancer, including a model of triple negative breast cancer in which immuno-deficient mice were implanted with a human metastatic breast cancer cell line.
- We anticipate an IND filing and initiation of a Phase 1 clinical trial in 2021.

P-PSMA-ALLO1

- Allogeneic CAR-T product candidate targeting PSMA being developed to treat patients with mCRPC.
- We have designed P-PSMA-ALLO1 to be fully allogeneic, with genetic edits to eliminate or reduce both host-vs-graft and graft-vs-host alloreactivity.
- We anticipate an IND filing and initiation of a Phase 1 clinical trial in 2022.

Dual CAR Allogeneic Programs

We have a portfolio of allogeneic Dual CAR product candidates, which contain two fully functional CAR molecules to target cells that express at least one of the two intended targets, that are in preclinical studies. We believe that our ability to include two or more fully functional CAR molecules into a T cell could be a significant competitive advantage. We intend to file INDs and initiate Phase 1 clinical trials in late 2021 and 2022.

Gene Therapy Programs

Our gene therapy product candidates have been developed by utilizing our piggyBac technology together with AAV to overcome the major limitations of traditional AAV gene therapy. We believe that our approach will result in integration and long-term stable expression at potentially much lower doses than AAV technology alone, thus also conferring cost and tolerability benefits. Our eventual goal is to completely replace AAV with our nanoparticle technology, freeing future product development in gene therapy of AAV limitations.

P-OTC-101

P-OTC-101 is a liver-directed gene therapy combining piggyBac technology with AAV for the *in vivo* treatment of OTC deficiency. OTC deficiency is a urea cycle disease caused by congenital mutations in the OTC gene with a high unmet medical need. In a neonatal mouse model of severe OTC deficiency, we observed greater than 80% of hepatocytes permanently corrected with a single injection of a piggyBac in combination with AAV to deliver an OTC therapeutic transgene. We anticipate an IND filing and initiation of a Phase 1 clinical trial for P-OTC-101 in late 2021 or early 2022.

P-MMUT-101

P-MMUT-101 is a liver-directed gene therapy combining piggyBac technology with AAV for the treatment of MMA. MMA is an inborn error of metabolism caused by congenital mutations in the

methylmalonyl-CoA mutase, or MMUT, gene affecting amino acid metabolism pathways with a high unmet medical need. We anticipate an IND filing and initiation of a Phase 1 clinical trial for P-MMUT-101 in 2022.

Our Team and Investors

We are led by an experienced management team with an unwavering commitment to developing next generation cell and gene therapeutics with the capacity to cure. Our Chief Executive Officer, Eric Ostertag, M.D., Ph.D., was the first graduate from the Gene Therapy Program at the University of Pennsylvania and has over 20 years of experience in cell and gene engineering, founding multiple biotechnology companies, including Transposagen Biopharmaceuticals. Dr. Ostertag served as Transposagen's Chief Executive Officer for 13 years, developing next-generation gene engineering technologies that were eventually spun out to create Poseida Therapeutics, in early 2015, and has served as our CEO since our founding. Our Chief Financial Officer and Chief Business Officer, Mark J. Gergen, J.D., has over 25 years of experience in healthcare and life science companies and, prior to joining our company in early 2018, was part of the executive management team for a number of successful biotechnology companies, including Amylin Pharmaceuticals, Mirati Therapeutics, and Halozyme Therapeutics. As of March 31, 2020, the management team is supported by our 149 employees, 86 of whom hold advanced degrees, including 51 with a Ph.D. and/or M.D. degree, and many with extensive experience in drug discovery and development.

Since our inception, we have raised approximately $334.3 million from our veteran group of strategic and life sciences focused institutional investors who support our mission. Our key investors include Adage Capital, Aisling Capital, Boxer Capital, Fidelity, Longitude Capital, Malin Corporation, Millennium Capital, Novartis Pharma AG, Pentwater Capital, Perceptive Advisors, Schonfeld and Vivo Capital.

Our Strategy

Our mission is to develop next generation cell and gene therapeutics with the capacity to cure. We plan to pursue our mission through the following strategies:

- ***Rapidly develop and commercialize autologous and allogeneic CAR-T therapies targeting hematological malignancies.*** We are developing both P-BCMA-101 and P-BCMA-ALLO1, product candidates for patients with relapsed/refractory multiple myeloma, to address cost and safety limitations of current CAR-T therapies utilized in this indication. Over time, we plan to develop our product candidates in earlier lines of treatment and for other hematological malignancies and will seek to commercialize in community hospital settings, and eventually in outpatient infusion sites. Based on the toxicity profile observed in the Phase 1 clinical trial and following discussions with the FDA, our potentially registrational Phase 2 clinical trial can be dosed on a fully outpatient basis. Should data from our P-BCMA-ALLO1 program, which we anticipate will begin to be available in late 2020 or early 2021, meet our expectations, we would consider reallocating our efforts and resources to advancing our allogeneic program.

- ***Leverage the strength and breadth of our platform technologies to develop autologous and allogeneic CAR-T therapies in solid tumors.*** Our platform technology is designed to address the historical CAR-T limitations in treating solid tumors, which result from the lack of product persistence needed to have a clinical impact on these indications. We are advancing both P-PSMA-101, P-PSMA-ALLO1 and P-MUC1C-ALLO1 as candidates for the treatment of solid tumors. P-PSMA-101 is an autologous CAR-T being evaluated in a Phase 1 clinical trial in which patient dosing was initiated in May 2020. Should P-PSMA-101 show promising efficacy in the clinic, we would likely accelerate our allogeneic version of this product candidate, P-PSMA-ALLO1. Due to the promising preclinical data we are seeing from P-BCMA-ALLO1, we

have decided to advance our first CAR-T targeting MUC1C, P-MUC1C-ALLO1, as a fully allogeneic program with the IND and start of a Phase 1 clinical trial expected in the second half of 2021.

- ***Utilize our platform technologies to pursue liver-directed gene therapy programs.*** Our lead gene therapy product candidates, P-OTC-101 and P-MMUT-101, utilize our piggyBac technology combined with AAV to target orphan genetic diseases with the goal of developing single-treatment cures. Over time, we intend to develop additional therapies for rare diseases and to replace AAV technology with nanoparticle-based delivery of our *in vivo* gene therapies. We believe that nanoparticle delivery of gene therapy would be a major advancement over AAV delivery by improving tolerability, lowering cost, allowing for re-dosing and addressing indications that AAV will not be able to effectively address, including diseases where correction necessitates delivery of large therapeutic transgenes. We plan to rapidly develop, and if approved, commercialize these gene therapy product candidates.

- ***Utilize our technology and capabilities to develop allogeneic multi-CAR-T products.*** Our allogeneic product candidates include Dual CD19/CD20 for B cell malignancies and potentially some autoimmune diseases, Dual BCMA/CD19 for multiple myeloma and an undisclosed Dual CAR for solid tumors. We believe these multi-CAR programs highlight the ability of our piggyBac platform to enable product candidates that other technologies will not be able to achieve easily, if at all. We plan to continue developing multi-CAR product candidates, which we believe could represent a next generation of CAR-T therapies.

- ***Evaluate strategic partnerships and structures to create value and continue to innovate and develop our platform technologies.*** Our platform technologies are highly differentiated with the ability to create many product candidates across a wide array of therapeutic modalities and indications. As such, we intend to seek partnerships and collaborations to expand our reach and create additional value in pursuit of our mission. In addition, we may evolve our corporate structure to implement a holding company or similar structure in order to maximize the value of our platform technologies and product candidates.

Risks Associated with Our Business

Our ability to successfully develop our product candidates and implement our business strategy is subject to numerous risks that you should be aware of before making an investment decision. These risks are described more fully in the section titled “Risk Factors,” immediately following this prospectus summary. These risks include the following, among others:

- We are a clinical-stage biopharmaceutical company with a limited operating history. We have incurred net losses since our inception and anticipate that we will continue to incur significant losses for the foreseeable future. We have never generated any revenue from product sales and may never be profitable.

- Our product candidates are in the early stages of development and we have a limited history of conducting clinical trials to test our product candidates in humans. We may not be able to successfully complete clinical development of any of our product candidates.

- The COVID-19 pandemic could continue to adversely impact our business, including our clinical trials, supply chain and business development activities.

- Our product candidates are based on novel technologies, which make it difficult to predict the timing, results and cost of product candidate development and likelihood of obtaining regulatory approval.

- Serious adverse events, undesirable side effects or other unexpected properties of our product candidates may be identified during development or after approval, which could lead to the discontinuation of our clinical development programs, refusal by regulatory authorities to approve our product candidates or, if discovered following marketing approval, revocation of marketing authorizations or limitations on the use of our product candidates.

- We rely on third parties to conduct our clinical trials, perform some of our research and preclinical studies and manufacture and supply certain of our product candidates. If these third parties do not satisfactorily carry out their contractual duties or fail to meet expected deadlines, our development programs may be delayed or subject to increased costs.

- We face substantial competition, which may result in others discovering, developing or commercializing products more quickly or marketing them more successfully than us.

- We are highly dependent on our key personnel, and if we are not successful in attracting and retaining highly qualified personnel, we may not be able to successfully implement our business strategy.

- We are currently party to several in-license agreements under which we acquired rights to use, develop, manufacture and/or commercialize certain of our gene engineering technologies and resulting product candidates. If we breach our obligations under these agreements, we may be required to pay damages, lose our rights to these technologies or both.

- Even if this offering is successful, we will need to obtain substantial additional funding to complete the development and any commercialization of our product candidates. If we are unable to raise this capital when needed, we may be forced to delay, reduce or eliminate our product development programs or other operations.

- If we are unable to obtain and maintain sufficient intellectual property protection for our platform technologies and product candidates, or if the scope of the intellectual property protection is not sufficiently broad, our competitors could develop and commercialize products similar or identical to ours.

- If we are sued for infringing intellectual property rights of third parties, such litigation could be costly and time consuming and could prevent or delay us from developing or commercializing our product candidates.

Corporate Information

We were incorporated in Delaware in December 2014. Our principal executive offices are located at 9390 Towne Centre Drive, Suite 200, San Diego, California 92121, and our telephone number is 858-779-3100. Our website address is www.poseida.com. The information contained in, or that can be accessed through, our website is not part of this prospectus.

Poseida Therapeutics, Inc. was created through a corporate reorganization of Transposagen Biopharmaceuticals, Inc., or Transposagen, with the purpose of pursuing Transposagen’s gene engineering tools

for developing therapeutic products. Transposagen was based in Lexington, Kentucky and was an early leader in developing gene engineering technologies. Our Chief Executive Officer, Eric Ostertag, M.D., Ph.D., was the founder and Chief Executive Officer of Transposagen prior to joining Poseida Therapeutics, Inc.

This prospectus includes our trademarks, trade names and service marks, such as piggyBac and Cas-CLOVER, which are protected under applicable intellectual property laws and are our property. This prospectus also contains trademarks, trade names and service marks of other companies, which are the property of their respective owners. Solely for convenience, trademarks, trade names and service marks referred to in this prospectus may appear without the ®, ™ or SM symbols, but such references are not intended to indicate, in any way, that we will not assert, to the fullest extent under applicable law, our rights or the right of the applicable licensor to such trademarks, trade names and service marks. We do not intend our use or display of other parties' trademarks, trade names or service marks to imply, and such use or display should not be construed to imply, a relationship with, or endorsement or sponsorship of us by, these other parties.

Implications of Being an Emerging Growth Company

We qualify as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012, as amended, or the JOBS Act. An emerging growth company may take advantage of relief from certain reporting requirements and other burdens that are otherwise applicable generally to public companies. These provisions include:

- reduced reporting obligations with respect to financial data, including presenting only two years of audited financial statements in addition to any required unaudited interim financial statements and only two years of selected financial data;
- an exemption from compliance with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, or the Sarbanes-Oxley Act;
- not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements;
- reduced disclosure obligations about executive compensation arrangements in periodic reports, proxy statements and registration statements; and
- exemptions from the requirements of holding non-binding advisory votes on executive compensation or golden parachute arrangements.

In addition, as an "emerging growth company" the JOBS Act allows us to delay adoption of new or revised accounting pronouncements applicable to public companies until such pronouncements are made applicable to private companies, unless we later irrevocably elect not to avail ourselves of this exemption. We have elected to use this extended transition period under the JOBS Act; however, we may choose to early adopt new or revised accounting pronouncements, if permitted under such pronouncements.

We may take advantage of these reporting exemptions until we are no longer an emerging growth company. We will remain an emerging growth company until the earlier of (1) the last day of the fiscal year (a) following the fifth anniversary of the completion of this offering, (b) in which we have total annual gross revenue of at least $1.07 billion or (c) in which we are deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds $700 million as of the prior June 30th and (2) the date on which we have issued more than $1.0 billion in non-convertible debt during the prior three-year period.

Because we have taken advantage of certain reduced reporting requirements and the ability to delay adoption of new or revised accounting pronouncements, the information contained herein may be different from the information you receive from other public companies in which you hold stock, and our consolidated financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates.

The Offering

Common stock offered by us	10,000,000 shares.
Option to purchase additional shares	We have granted the underwriters an option exercisable for a period of 30 days to purchase up to 1,500,000 additional shares of our common stock.
Common stock to be outstanding immediately after this offering	57,815,886 shares (or 59,315,886 shares if the underwriters exercise their option to purchase additional shares of common stock in full).
Use of proceeds	We intend to use the net proceeds from this offering to fund the ongoing and planned clinical development of our product candidates and the remainder for developing our gene therapy and other CAR-T preclinical product candidates and research programs, as well as for working capital and other general corporate purposes. See the section titled "Use of Proceeds."
Risk factors	You should read the section titled "Risk Factors" for a discussion of factors to consider carefully before deciding to invest in shares of our common stock.
Reserved share program	At our request, an affiliate of BofA Securities, Inc., a participating underwriter, has reserved for sale, at the initial public offering price, up to 5% of the shares offered by this prospectus for sale to certain of our directors, officers, employees, existing investors, business associates and related persons. See "Underwriting" for more information.
Proposed Nasdaq Global Select Market symbol	"PSTX"

The number of shares of common stock to be outstanding after this offering is based on 47,815,886 shares of common stock outstanding as of March 31, 2020, after giving effect to the issuance of 10,018,300 shares of our Series D redeemable convertible preferred stock, or our Series D preferred stock, in June 2020, and the automatic conversion of all shares of outstanding preferred stock into common stock, and excludes the following:

- 3,853,223 shares of common stock issuable upon the exercise of options outstanding as of March 31, 2020, with a weighted-average exercise price of $9.38 per share;
- 93,518 shares of common stock issuable upon the exercise of outstanding warrants as of March 31, 2020, with an exercise price of $4.28 per share;
- 27,604 shares of common stock issuable upon the exercise of outstanding warrants as of March 31, 2020, with an exercise price of $7.25 per share;
- 11,183,476 shares of common stock reserved for issuance under our 2020 Equity Incentive Plan, or the 2020 Plan, which will become effective in connection with this offering, as well as any automatic annual increases in the number of shares of common stock reserved for future issuance under the 2020 Plan, as more fully described in the section titled "Executive and Director Compensation—Equity Plans;"

- 615,000 shares of common stock reserved for future issuance under our 2020 Employee Stock Purchase Plan, or 2020 ESPP, which will become effective in connection with this offering, as well as any automatic annual increases in the number of shares of common stock reserved for future issuance under the 2020 ESPP, as more fully described in the section titled "Executive and Director Compensation—Equity Plans;" and

- 537,685 shares of our common stock issuable upon the exercise of stock options to be granted to certain of our officers, directors and employees under our 2020 Plan, contingent and effective upon the execution and delivery of the underwriting agreement relating to this offering, with an exercise price that is equal to the price per share at which our common stock is first sold to the public in this offering.

Unless otherwise indicated, all information in this prospectus assumes or gives effect to:

- the issuance of an aggregate of 10,018,300 shares of our Series D preferred stock in June 2020;

- the automatic conversion of all outstanding shares of our preferred stock into an aggregate of 34,445,108 shares of common stock immediately prior to and in connection with the completion of this offering;

- the automatic conversion of all outstanding warrants to purchase shares of preferred stock into warrants to purchase up to an aggregate of 121,122 shares of our common stock;

- no exercise of the outstanding options and warrants described above;

- a 1-for-1.247 reverse stock split of our common stock effected on July 2, 2020;

- the filing and effectiveness of our amended and restated certificate of incorporation and the adoption of our amended and restated bylaws, each of which will occur immediately prior to the completion of this offering; and

- no exercise by the underwriters of their option to purchase 1,500,000 additional shares of common stock from us in this offering.

Summary Consolidated Financial Data

The following tables set forth a summary of our historical consolidated financial data as of, and for the periods ended on, the dates indicated. We have derived the summary consolidated statements of operations and comprehensive loss data for the years ended December 31, 2018 and 2019 from our audited consolidated financial statements included elsewhere in this prospectus. We have derived the summary consolidated statements of operations and comprehensive loss data for the three months ended March 31, 2019 and 2020 and the summary consolidated balance sheet data as of March 31, 2020 from our unaudited condensed consolidated financial statements included elsewhere in this prospectus. Our unaudited condensed consolidated financial statements have been prepared on a basis consistent with our audited consolidated financial statements except for the adoption of Accounting Standards Codification, or ASC, 842 and, in the opinion of management, reflect all adjustments, consisting only of normal recurring adjustments, necessary to fairly state our results of operations for the three months ended March 31, 2019 and 2020 and our financial position as of March 31, 2020. Our historical results are not necessarily indicative of the results that may be expected in the future. You should read the following summary consolidated financial data together with our consolidated financial statements and the related notes included elsewhere in this prospectus and the sections titled “Selected Consolidated Financial Data” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations.”

	Year Ended December 31,		Three Months Ended March 31,	
	2018	2019	2019	2020
			(unaudited)	
	(in thousands, except share and per share amounts)			
Consolidated Statements of Operations and Comprehensive Loss Data:				
Operating expenses:				
Research and development	$ 30,883	$ 60,393	$ 8,613	$ 23,414
General and administrative	9,674	18,457	6,399	4,854
Increase (decrease) in contingent consideration	1,432	6,683	(1,797)	—
Total operating expenses	41,989	85,533	13,215	28,268
Loss from operations	(41,989)	(85,533)	(13,215)	(28,268)
Other income (expense):				
Interest expense	(1,796)	(3,553)	(795)	(914)
Other income (expense), net	(821)	2,559	676	398
Net loss before income tax	(44,606)	(86,527)	(13,334)	(28,784)
Income tax benefit	202	—	—	—
Net loss	$ (44,404)	$ (86,527)	$ (13,334)	$ (28,784)
Net loss per share attributable to common stockholders, basic and diluted	$ (3.64)	$ (6.86)	$ (1.08)	$ (2.16)
Weighted-average shares of common stock outstanding, basic and diluted	12,183,979	12,618,413	12,290,621	13,322,582
Pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)(1)		$ (2.42)		$ (0.72)
Pro forma weighted-average shares of common stock outstanding, basic and diluted (unaudited)(1)		35,929,992		39,733,793
Net loss	$ (44,404)	$ (86,527)	$ (13,334)	$ (28,784)
Other comprehensive income	—	19	—	111
Comprehensive loss	$ (44,404)	$ (86,508)	$ (13,334)	$ (28,673)

(1) See Notes 2 and 15 to our annual consolidated financial statements and Notes 2 and 12 to our quarterly condensed consolidated financial statements included elsewhere in this prospectus for an explanation of the method used to calculate the historical and pro forma net loss per share of common stock, basic and diluted, and the number of shares used in the computation of the per share amounts.

	March 31, 2020		
	Actual	Pro Forma(2)	Pro Forma As Adjusted(3)
		(unaudited) (in thousands)	
Consolidated Balance Sheet Data:			
Cash, cash equivalents and short-term investments	$ 103,379	$ 212,879	$ 348,879
Working capital(1)	68,744	178,244	314,244
Total assets	156,301	265,801	401,801
Term debt	29,227	29,227	29,227
Deferred CIRM grant liability	23,756	23,756	23,756
Warrant liability	1,251	—	—
Convertible preferred stock	222,173	—	—
Total stockholders' (deficit) equity	(176,381)	156,543	292,543

(1) We define working capital as total current assets less total current liabilities. See our consolidated financial statements included elsewhere in this prospectus for further details regarding our current assets and current liabilities.

(2) Gives effect to (i) the issuance of an aggregate of 10,018,300 shares of our Series D preferred stock in June 2020 and our receipt of approximately $109.5 million in aggregate gross proceeds therefrom, (ii) the automatic conversion of all outstanding shares of our preferred stock into an aggregate of 34,445,108 shares of our common stock and the resulting reclassification of the carrying value of the preferred stock to additional paid-in capital in connection with the completion of this offering and (iii) the automatic conversion of all outstanding warrants to purchase shares of preferred stock into warrants to purchase up to an aggregate of 121,122 shares of our common stock and the resulting reclassification of the carrying value of the warrant liability to additional paid-in capital in connection with the completion of this offering.

(3) Gives effect to (i) the pro forma adjustments set forth in footnote (2) above and (ii) our issuance and sale of 10,000,000 shares of our common stock in this offering at the assumed initial public offering price of $15.00 per share, which is the midpoint of the estimated price range set forth on the cover page of this prospectus, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. Each $1.00 increase (decrease) in the assumed initial public offering price of $15.00 per share would increase (decrease) the pro forma as adjusted amount of each of our cash, cash equivalents and short-term investments, working capital, total assets and total stockholders' (deficit) equity by approximately $9.3 million, assuming the number of shares offered by us, as set forth on the cover page of this prospectus remains the same and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. Similarly, each increase (decrease) of 1.0 million shares in the number of shares offered by us, as set forth on the cover page of this prospectus, at the assumed initial public offering price of $15.00 per share would increase (decrease) the pro forma as adjusted amounts of each of our cash, cash equivalents and short-term investments, working capital, total assets and total stockholders' (deficit) equity by approximately $13.9 million, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. The pro forma as adjusted information discussed above is illustrative only and will be adjusted based on the actual initial public offering price and other terms of this offering determined at pricing.

RISK FACTORS

Investing in our common stock is speculative and involves a high degree of risk. You should consider carefully the risks described below, together with the other information contained in this prospectus, including our consolidated financial statements and the related notes included elsewhere in this prospectus and in the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" before deciding whether to invest in our common stock. If any of the following risks occur, our business, financial condition, results of operations and future growth prospects could be materially and adversely affected. In these circumstances, the market price of our common stock could decline, and you may lose all or part of your investment. This prospectus also contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of a number of factors, including the risks described below. See the section titled "Special Note Regarding Forward-Looking Statements."

Risks Related to Our Limited Operating History, Financial Position and Capital Requirements

We are a clinical-stage biopharmaceutical company with a limited operating history. We have incurred net losses since our inception and anticipate that we will continue to incur significant losses for the foreseeable future. We have never generated any revenue from product sales and may never be profitable.

We are a clinical-stage biopharmaceutical company with a limited operating history that may make it difficult to evaluate the success of our business to date and to assess our future viability. Our operations to date have been limited to organizing and staffing our company, business planning, raising capital, establishing and protecting our intellectual property portfolio, developing our platform technologies, identifying potential product candidates and undertaking research and development and manufacturing activities, including preclinical studies and clinical trials of our product candidates. All of our product candidates are in early development, and none have been approved for commercial sale. We have never generated any revenue from product sales and have incurred net losses each year since we commenced operations. For the years ended December 31, 2018 and 2019, our net losses were $44.4 million and $86.5 million, respectively. For the three months ended March 31, 2019 and 2020, our net losses were $13.3 million and $28.8 million, respectively. As of March 31, 2020, we had an accumulated deficit of $180.9 million. We expect that it will be several years, if ever, before we have a product candidate ready for regulatory approval and commercialization. We expect to incur increasing levels of operating losses over the next several years and for the foreseeable future as we advance our product candidates through clinical development. Our prior losses, combined with expected future losses, have had and will continue to have an adverse effect on our stockholders' deficit and working capital.

To become and remain profitable, we must develop and eventually commercialize a product or products with significant market potential. This will require us to be successful in a range of challenging activities, including completing preclinical studies and clinical trials of our product candidates, obtaining marketing approval for these product candidates, manufacturing, marketing and selling those products for which we may obtain marketing approval and satisfying any post-marketing requirements. We may never succeed in these activities and, even if we succeed in commercializing one or more of our product candidates, we may never generate revenue that is significant or large enough to achieve profitability. In addition, as a young business, we may encounter unforeseen expenses, difficulties, complications, delays and other known and unknown challenges. If we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis and we will continue to incur substantial research and development and other expenditures to develop and market additional product candidates. Our failure to become and remain profitable would decrease the value of the company and could impair our ability to raise capital, maintain our research and development efforts, expand our business or continue our operations. A decline in the value of our company could also cause you to lose all or part of your investment.

Our recurring losses and negative cash flows from operations raise substantial doubt about our ability to continue as a going concern. As a result, the audit report of our independent registered public accounting firm

contained in our consolidated financial statements for the year ended December 31, 2019 includes an explanatory paragraph that describes conditions that raise substantial doubt about our ability to continue as a going concern. We are seeking to complete an initial public offering, or IPO, of our common stock. In the event we do not complete an IPO, we expect to seek additional funding through private equity financings, debt financings, collaborations or grant funding. However, especially in light of the COVID-19 pandemic, if we are unable to obtain adequate financing, we could be forced to delay, reduce or eliminate our research and development programs or other operations. If any of these events occur, our ability to achieve our development and commercialization goals would be adversely affected. We do not have any additional financing in place and there can be no assurance that we can obtain financing, if at all, on terms acceptable to us.

Even if this offering is successful, we will need to obtain substantial additional funding to complete the development and any commercialization of our product candidates. If we are unable to raise this capital when needed, we may be forced to delay, reduce or eliminate our product development programs or other operations.

Since our inception, we have used substantial amounts of cash to fund our operations and expect our expenses to increase substantially during the next few years. The development of biopharmaceutical product candidates is capital intensive. As our product candidates enter and advance through preclinical studies and clinical trials, we will need substantial additional funds to expand our clinical, regulatory, quality and manufacturing capabilities. In addition, if we obtain marketing approval for any of our product candidates, we expect to incur significant commercialization expenses related to marketing, sales, manufacturing and distribution. Furthermore, upon the completion of this offering, we expect to incur additional costs associated with operating as a public company.

As of March 31, 2020, we had $103.4 million in cash, cash equivalents and short-term investments. Based upon our current operating plan, we believe that the net proceeds from this offering, together with our existing cash, cash equivalents and short-term investments, which includes approximately $109.5 million in gross proceeds from the sale of our Series D preferred stock in June 2020, will enable us to fund our operations through at least the next 18 months from the date of this offering. However, the expected net proceeds from this offering will not be sufficient to fund any of our product candidates through regulatory approval, and we will need to raise substantial additional capital to complete the development and commercialization of our product candidates.

We have based these estimates on assumptions that may prove to be incorrect or require adjustment as a result of business decisions, and we could utilize our available capital resources sooner than we currently expect. Our future capital requirements will depend on many factors, including:

- scope, progress and results of our ongoing and planned preclinical studies and clinical trials for our product candidates;
- unanticipated serious safety concerns related to the use of our product candidates;
- timing of licensing payments we may be required to make based on the development of our product candidates;
- the number of and development requirements of other product candidates that we may pursue;
- the timing and outcome of regulatory review of our product candidates;
- changes in laws or regulations applicable to our product candidates, including but not limited to clinical trial requirements for approval;
- our decisions to initiate additional clinical trials, not to initiate any clinical trial or to terminate an existing clinical trial;

- the cost of obtaining raw materials and drug product for clinical trials and commercial supply, which, due to the wide variability in manufacturing costs between autologous and allogeneic product candidates, will also depend on which product candidates progress to future clinical trials;
- whether we decide to partner any of our product candidates with any third parties and the terms of any such partnership or collaboration;
- the cost and timing of establishing and validating our pilot manufacturing facility;
- whether we decide to establish a commercial manufacturing facility for supply of our product candidates; and
- additions or departures of key scientific or management personnel.

Because we do not expect to generate revenue from product sales for many years, if at all, we will need to obtain substantial additional funding in connection with our continuing operations and expected increases in expenses. Until such time as we can generate significant revenue from sales of our product candidates, if ever, we expect to finance our cash needs through equity offerings, debt financings or other capital sources, including potentially grants, collaborations, licenses or other similar arrangements. In addition, we may seek additional capital due to favorable market conditions or strategic considerations, even if we believe we have sufficient funds for our current or future operating plans. The impact of the COVID-19 pandemic on capital markets may affect the availability, amount and type of financing available to us in the future. If we are unable to raise capital when needed or on attractive terms, we would be forced to delay, reduce or eliminate our research and development programs or future commercialization efforts.

Raising additional capital may cause dilution to our stockholders, including purchasers of common stock in this offering, restrict our operations or require us to relinquish rights to our technologies or product candidates.

Until such time, if ever, as we can generate substantial product revenue, we expect to finance our operations through equity offerings, debt financings or other capital sources, including potentially grants, collaborations, licenses or other similar arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a common stockholder. Additional debt financing, if available, may involve agreements that include covenants further limiting or restricting our ability to take specific actions beyond those contained in our existing loan agreement, such as further limitations on our ability to incur additional debt, make capital expenditures or declare dividends.

If we raise funds through collaborations or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds when needed, we may be required to delay, limit, reduce or terminate our product development or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

The terms of our loan agreement place restrictions on our operating and financial flexibility. If we raise additional capital through debt financing, the terms of any new debt could further restrict our ability to operate our business.

We have an outstanding term loan in the principal amount of $30.0 million under our loan and security agreement, as amended, with Oxford Finance LLC, or Oxford. The loan is secured by a lien covering substantially all of our personal property, rights and assets, excluding intellectual property. The loan agreement

contains customary affirmative and negative covenants and events of default applicable to us and any subsidiaries. The affirmative covenants include, among others, covenants requiring us (and us to cause our subsidiaries, if any) to maintain governmental approvals, deliver certain financial reports, maintain insurance coverage, keep inventory, if any, in good and marketable condition and protect material intellectual property. The negative covenants include, among others, restrictions on us and our subsidiaries transferring collateral, incurring additional indebtedness, engaging in mergers or acquisitions, paying cash dividends or making other distributions, making investments, creating liens, selling assets and making any payment on subordinated debt, in each case subject to certain exceptions. The restrictive covenants of the loan agreement could cause us to be unable to pursue business opportunities that we or our stockholders may consider beneficial. In addition, Oxford could declare a default upon the occurrence of any event that it interprets as a material adverse change as defined under the loan agreement. If we default under the loan agreement, Oxford may accelerate all of our repayment obligations and take control of our pledged assets, potentially requiring us to renegotiate our agreement on terms less favorable to us or to immediately cease operations. Further, if we are liquidated, Oxford's right to repayment would be senior to the rights of the holders of our common stock to receive any proceeds from the liquidation. Any declaration by Oxford of an event of default could significantly harm our business and prospects and could cause the price of our common stock to decline. If we raise any additional debt financing, the terms of such additional debt could further restrict our operating and financial flexibility.

Risks Related to the Discovery, Development and Regulatory Approval of Our Product Candidates

Our product candidates are in the early stages of development and we have a limited history of conducting clinical trials to test our product candidates in humans.

We are early in our development efforts and most of our operations to date have been limited to developing our platform technologies, establishing manufacturing capabilities and conducting drug discovery and preclinical studies. Our lead product candidate, P-BCMA-101, entered a Phase 1 clinical trial in December 2017, which was the first time one of our product candidates had been tested in humans, and we dosed the first patient in a Phase 1 clinical trial of our second product candidate, P-PSMA-101, in May 2020. As a result, we have limited infrastructure, experience conducting clinical trials as a company and regulatory interactions, and cannot be certain that our clinical trials will be completed on time, that our planned clinical trials will be initiated on time, if at all, that our planned development programs would be acceptable to the FDA or other comparable foreign regulatory authorities, or that, if approval is obtained, such product candidates can be successfully commercialized.

Because of the early stage of development of our products candidates, our ability to eventually generate significant revenues from product sales will depend on a number of factors, including:

- successful completion of preclinical studies;
- submission of our INDs or other regulatory applications for our planned clinical trials or future clinical trials and authorizations from regulators to initiate clinical studies;
- successful enrollment in, and completion of, clinical trials and achieving positive results from the trials;
- receipt of marketing approvals from applicable regulatory authorities;
- establishing manufacturing capabilities or arrangements with third-party manufacturers for clinical supply and, if and when approved, for commercial supply;
- establishing sales, marketing and distribution capabilities and launching commercial sales of our products, if and when approved, whether alone or in combination with others;

- acceptance of our products, if and when approved, by patients, the medical community and third-party payors;
- effectively competing with other therapies;
- developing and implementing marketing and reimbursement strategies;
- obtaining and maintaining third-party coverage and adequate reimbursement;
- obtaining and maintaining patent, trade secret and other intellectual property protection and regulatory exclusivity for our product candidates;
- the ability to obtain clearance or approval of companion diagnostic tests, if required, on a timely basis, or at all; and
- maintaining a continued acceptable safety profile of any product following approval, if any.

If we do not achieve one or more of these requirements in a timely manner, we could experience significant delays or an inability to successfully commercialize our product candidates, which would materially harm our business.

Clinical development is a lengthy, expensive and uncertain process. The results of preclinical studies and early clinical trials are not always predictive of future results. Any product candidate that we advance into clinical trials may not achieve favorable results in later clinical trials, if any, or receive marketing approval.

The research and development of drugs and biological products is extremely risky. Only a small percentage of product candidates that enter the development process ever receive marketing approval. Before obtaining marketing approval from regulatory authorities for the sale of our product candidates, we must conduct extensive clinical trials to demonstrate the safety and efficacy of the product candidates in humans. Clinical testing is expensive, can take many years to complete and its outcome is uncertain.

The results of preclinical studies and early clinical trials of our product candidates and other products, even those with the same or similar mechanisms of action, may not be predictive of the results of later-stage clinical trials. In particular, it is not uncommon for product candidates to exhibit unforeseen safety or efficacy issues when tested in humans despite promising results in preclinical animal models. While we have conducted preclinical studies and have interim Phase 1 clinical trial results for P-BCMA-101 at certain dose levels, we do not know how P-BCMA-101 will perform in the ongoing Phase 1 clinical trial or in future clinical trials, whether any initial tumor responses observed to date will be durable or whether adverse events will arise over time. In addition, due primarily to the observation of anti-drug antibodies observed in some patients, we are currently exploring additional dosing strategies, such as administering the doses in smaller cycles in the first 30 days and adding rituximab to the preconditioning regime to potentially suppress any antibody response, in the expanded Phase 1 portion of our clinical program. If these anti-drug antibodies are neutralizing the product candidate, the activity of P-BCMA-101, or any other product candidate in which anti-drug antibodies neutralize the product candidate, may be limited. To the extent that we choose one of these newer dosing strategies for advancement in our Phase 2 clinical trial, it may be on the basis of more limited data as compared to the previously evaluated Phase 1 cohorts, and therefore we may have limited ability to predict how P-BCMA-101 will perform in the Phase 2 clinical trial. Further, the P-BCMA-101 product used in our ongoing exploratory dosing cohorts was manufactured at a different facility using revised methods from those used in our original Phase 1 cohorts, which could adversely affect the results of such cohorts and future trials. Similarly, for P-PSMA-101, we dosed the first patient in a Phase 1 clinical trial in May 2020. Other than P-BCMA-101 and P-PSMA-101, none of our product candidates have ever been tested in humans. Future results of preclinical and clinical testing of our product candidates are also less certain due to the novel and relatively untested nature of our approach to CAR-T and

gene therapy development and related platform technologies. In general, clinical trial failure may result from a multitude of factors including flaws in study design, dose selection, patient enrollment criteria and failure to demonstrate favorable safety or efficacy traits. As such, failure in clinical trials can occur at any stage of testing. A number of companies in the biopharmaceutical industry have suffered setbacks in the advancement of clinical trials due to lack of efficacy or adverse safety profiles, notwithstanding promising results in earlier trials.

If the results of our clinical trials are inconclusive or if there are safety concerns or adverse events associated with our product candidates, we may:

- incur unplanned costs;
- be delayed in or prevented from obtaining marketing approval for our product candidates;
- obtain approval for indications or patient populations that are not as broad as intended or desired;
- obtain approval with labeling that includes significant use or distribution restrictions or safety warnings including boxed warnings;
- be subject to changes in the way the product is administered;
- be required to perform additional clinical trials to support approval or be subject to additional post-marketing testing requirements;
- have regulatory authorities withdraw their approval of the product or impose restrictions on its distribution in the form of a modified Risk Evaluation and Mitigation Strategy, or REMS;
- be subject to the addition of labeling statements, such as warnings or contraindications;
- be sued; or
- experience damage to our reputation.

Treatment with our oncology product candidates involves chemotherapy and myeloablative treatments, which can cause side effects or adverse events that are unrelated to our product candidate but may still impact the success of our clinical trials. Additionally, our product candidates could potentially cause other adverse events. The inclusion of critically ill patients in our clinical trials may result in deaths or other adverse medical events due to other therapies or medications that such patients may be using. As described above, any of these events could prevent us from obtaining regulatory approval or achieving or maintaining market acceptance of our product candidates and impair our ability to commercialize our products. Because all of our product candidates are derived from our platform technologies, a clinical failure of one of our product candidates may also increase the actual or perceived likelihood that our other product candidates will experience similar failures.

We may encounter substantial delays in our clinical trials.

We cannot guarantee that any clinical trials will be conducted as planned or completed on schedule, if at all. For example, we cannot begin our planned Phase 1 clinical trials for P-BCMA-ALLO1 or P-MUC1C-101, our Dual CAR product candidates or our liver directed gene therapy candidates until we complete certain preclinical development and submit and receive authorization to proceed under INDs. In addition, we initiated a Phase 2 clinical trial for P-BCMA-101 while our Phase 1 clinical trial continues, and we cannot predict whether results observed in the ongoing Phase 1 clinical trial, including from new dosing levels or schedules or manufacturing changes, will delay the completion of the Phase 2 clinical trial. We also dosed the first patient in a Phase 1 clinical trial for P-PSMA-101 in May 2020 and cannot predict how our technology may work in solid

tumor indications. Finally, the COVID-19 pandemic has impacted clinical trials broadly, including our own with some sites pausing enrollment. We may experience delays in site initiation and patient enrollment, failures to comply with study protocols, delays in the manufacture of our product candidates for clinical testing and other difficulties in starting or competing our clinical trials. Other events that may prevent successful or timely completion of clinical development include:

- delays in reaching a consensus with regulatory agencies on trial design;
- delays in reaching agreement on acceptable terms with prospective clinical research organizations, or CROs, and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and trial sites;
- delays in obtaining required institutional review board, or IRB, approval at each clinical trial site;
- delays in recruiting suitable patients to participate in our clinical trials;
- imposition of a clinical hold by regulatory agencies, after an inspection of our clinical trial operations or study sites;
- failure by our CROs, other third parties or us to adhere to the trial protocol or the FDA's good clinical practices, or GCPs, or applicable regulatory guidelines in other countries;
- third-party contractors becoming debarred or suspended or otherwise penalized by the FDA or other comparable foreign regulatory authorities for violations of applicable regulatory requirements;
- delays in the testing, validation, manufacturing and delivery of our product candidates to the treatment sites, including due to a facility manufacturing any of our product candidates or any of their components being ordered by the FDA or comparable foreign regulatory authorities to temporarily or permanently shut down due to violations of current good manufacturing practices, or cGMPs, regulations or other applicable requirements, or infections or cross-contaminations of product candidates in the manufacturing process;
- delays in having patients complete participation in a study or return for post-treatment follow-up;
- clinical trial sites or patients dropping out of a study;
- discovering that product candidates have unforeseen safety issues, undesirable side effects or other unexpected characteristics;
- to the extent that we conduct clinical trials in foreign countries, the failure of enrolled patients in foreign countries to adhere to clinical protocol as a result of differences in healthcare services or cultural customs, managing additional administrative burdens associated with foreign regulatory schemes, as well as political and economic risks relevant to such foreign countries;
- receiving untimely or unfavorable feedback from applicable regulatory authorities regarding the trial or requests from regulatory authorities to modify the design of a trial;
- suspensions or terminations by us, the IRBs of the institutions at which such trials are being conducted, by the Data Safety Monitoring Board, or DSMB, for such trial or by regulatory authorities due to a number of factors, including those described above;
- lack of adequate funding; or

- changes in regulatory requirements and guidance that require amending or submitting new clinical protocols.

Any inability to successfully complete preclinical and clinical development could result in additional costs to us or impair our ability to raise capital, generate revenues from product sales and enter into or maintain collaboration arrangements. For example, under certain of our manufacturing agreements for our product candidates we pay a fixed price per month for up to a specified number of manufacturing runs and certain clinical trial services agreements are based on fees that to not vary based on patient enrollment. Therefore, if enrollment in a clinical trial is slowed, certain of our expenses related to the trial would not decrease and therefore the overall costs to complete the trial would increase. In addition, if we make manufacturing changes to our product candidates, we may need to conduct additional studies to bridge our modified product candidates to earlier versions. Clinical trial delays could also shorten any periods during which we may have the exclusive right to commercialize our product candidates or allow our competitors to bring products to market before we do, which could impair our ability to successfully commercialize our product candidates and may harm our business and results of operations.

Our product candidates are based on novel technologies, which make it difficult to predict the timing, results and cost of product candidate development and likelihood of obtaining regulatory approval.

We have concentrated our research and development efforts on product candidates using our platform technologies, and our future success depends on the successful development of this approach. CAR-T and gene editing in general are newly-emerging fields and our approaches in particular have not been extensively tested over any significant period of time. In particular, while we believe that CAR-T products with higher percentages of T_{SCM} cells may be capable of overcoming certain challenges faced by early-generation CAR-T products, we cannot be certain that increasing the percentage of these cells will result in the intended benefits or will not result in unforeseen negative consequences over time, including due to the potential long-term persistence of the modified cells in the body. We have not yet succeeded and may not succeed in demonstrating efficacy and safety for any product candidates based on our platform technologies in clinical trials or in obtaining marketing approval thereafter, and use of our platform technologies may not ever result in marketable products. We may also experience delays in developing a sustainable, reproducible and scalable manufacturing process or transferring that process to commercial partners or establishing our own commercial manufacturing capabilities, which may prevent us from completing our clinical trials or commercializing any products on a timely or profitable basis, if at all.

In addition, the clinical trial requirements of the FDA, the European Medicines Agency, or EMA, and other regulatory agencies and the criteria these regulators use to determine the safety and efficacy of a product candidate vary substantially according to the type, complexity, novelty and intended use and market of the potential products. The regulatory approval process for novel product candidates such as ours can be more expensive and take longer than for other, better known or extensively studied pharmaceutical or other product candidates. While CAR-T and gene therapy products have made progress in recent years, only a small number of products have been approved in the United States or other markets, which makes it difficult to determine how long it will take or how much it will cost to obtain regulatory approvals for our product candidates.

In addition, the gene-editing industry is rapidly developing, and our competitors may introduce new technologies that render our technologies obsolete or less attractive. New technology could emerge at any point in the development cycle of our product candidates. As competitors use or develop alternative technologies, any failures of such technologies could adversely impact our programs. For example, recent studies suggested that gene editing using the CRISPR-Cas9 method may increase the risk that the edited cells themselves become cancerous. Regardless of our belief that our non-viral Cas-CLOVER approach to gene editing may avoid some of the issues identified in these studies, it is possible that our approach will be associated with similar risks or that issues encountered with other gene editing techniques will create a negative perception of or increase scrutiny for our technologies and product candidates.

Regulatory requirements governing products created with gene editing technology or involving gene therapy treatment have changed frequently and will likely continue to change in the future. Approvals by one regulatory agency may not be indicative of what any other regulatory agency may require for approval, and there is substantial, and sometimes uncoordinated, overlap in those responsible for regulation of gene therapy products and other products created with gene editing technology. For example, under the National Institutes of Health, or NIH, Guidelines for Research Involving Recombinant DNA Molecules, or NIH Guidelines, supervision of human gene transfer trials includes evaluation and assessment by an institutional biosafety committee, or IBC, a local institutional committee that reviews and oversees research utilizing recombinant or synthetic nucleic acid molecules at that institution. The IBC assesses the safety of the research and identifies any potential risk to public health or the environment, and such review may result in some delay before initiation of a clinical trial. While the NIH Guidelines are not mandatory unless the research in question is being conducted at or sponsored by institutions receiving NIH funding of recombinant or synthetic nucleic acid molecule research, many companies and other institutions not otherwise subject to the NIH Guidelines voluntarily follow them. Even though we may not be required to submit a protocol for our product candidates through the NIH for review, we will still be subject to significant regulatory oversight by the FDA, and in addition to the government regulators, the applicable IBC and IRB of each institution at which we conduct clinical trials of our product candidates, or a central IRB if appropriate, would need to review and approve the proposed clinical trial.

Additionally, adverse developments in clinical trials conducted by others of gene therapy products or products created using genome editing technology, such as products developed through the application of a CRISPR/Cas9 technology, or adverse public perception of the field of gene editing, may cause the FDA and other regulatory bodies to revise the requirements for approval of any product candidates we may develop or limit the use of products utilizing gene editing technologies, either of which could materially harm our business. Furthermore, regulatory action or private litigation could result in expenses, delays or other impediments to our research programs or the development or commercialization of current or future product candidates.

We are also developing allogeneic CAR-T product candidates that are engineered from healthy donor T cells and are intended for use in any patient with certain cancers. Allogeneic versions of CAR-T product candidates is an unproven field of development and is subject to particular risks that are difficult to quantify, including understanding and addressing variability in the quality of a donor's T cells and the patient's potential immune reaction to the foreign donor cells, which could ultimately affect safety, efficacy and our ability to produce product in a reliable and consistent manner.

Serious adverse events, undesirable side effects or other unexpected properties of our product candidates may be identified during development or after approval, which could lead to the discontinuation of our clinical development programs, refusal by regulatory authorities to approve our product candidates or, if discovered following marketing approval, revocation of marketing authorizations or limitations on the use of our product candidates thereby limiting the commercial potential of such product candidate.

To date, we have only tested P-BCMA-101 in a limited number of patients with cancer and these clinical trial participants have only been observed for a limited period of time after dosing. As we continue developing our product candidates and initiate clinical trials of our additional product candidates, serious adverse events, or SAEs, undesirable side effects, relapse of disease or unexpected characteristics may emerge causing us to abandon these product candidates or limit their development to more narrow uses or subpopulations in which the SAEs or undesirable side effects or other characteristics are less prevalent, less severe or more acceptable from a risk-benefit perspective or in which efficacy is more pronounced or durable. For example, a significant risk observed in CAR-T product clinical trials is the development of CRS which in some instances resulted in neurotoxicity and patient deaths. In our ongoing Phase 1 clinical trial of P-BCMA-101, as of the data cutoff of January 31, 2020, the rate of CRS remained low at approximately 20%, with only one being [3] Grade 3. There was also one patient reported to have neurotoxicity related to P-BCMA-101 (confusion observed in a patient with mental status changes before administration of P-BCMA-101), and no deaths related to P-BCMA-101. Overall other common treatment emergent adverse events and SAEs have included cytopenias,

infections and constitutional symptoms, which are mostly consistent with conditioning lymphodepletion therapy and the underlying disease and not generally believed by us to be related to CAR-T therapies like P-BCMA-101. Should we observe additional or more severe cases of CRS in our clinical trials or identify other undesirable side effects or other unexpected findings depending on their severity, our trials could be delayed or even stopped and our development programs may be halted entirely.

Even if our product candidates initially show promise in early clinical trials, the side effects of biological products are frequently only detectable after they are tested in larger, longer and more extensive clinical trials or, in some cases, after they are made available to patients on a commercial scale after approval. Sometimes, it can be difficult to determine if the serious adverse or unexpected side effects were caused by the product candidate or another factor, especially in oncology subjects who may suffer from other medical conditions and be taking other medications. If serious adverse or unexpected side effects are identified during development or after approval and are determined to be attributed to our product candidate, we may be required to develop a REMS to ensure that the benefits of treatment with such product candidate outweigh the risks for each potential patient, which may include, among other things, a communication plan to health care practitioners, patient education, extensive patient monitoring or distribution systems and processes that are highly controlled, restrictive and more costly than what is typical for the industry. Product-related side effects could also result in potential product liability claims. Any of these occurrences may harm our business, financial condition and prospects significantly.

In addition, if one or more of our product candidates receives marketing approval, and we or others later identify undesirable side effects caused by such products, a number of potentially significant negative consequences could result, including:

- regulatory authorities may suspend, withdraw or limit approvals of such product, or seek an injunction against its manufacture or distribution;
- regulatory authorities may require additional warnings on the label, including “boxed” warnings, or issue safety alerts, Dear Healthcare Provider letters, press releases or other communications containing warnings or other safety information about the product;
- we may be required to create a medication guide outlining the risks of such side effects for distribution to patients;
- we may be required to change the way a product is administered or conduct additional clinical trials;
- the product may become less competitive;
- we may decide to remove the product from the marketplace; and
- we may be subject to fines, injunctions or the imposition of civil or criminal penalties.

Interim, topline and preliminary data from our clinical trials may change as more patient data become available, and are subject to audit and verification procedures that could result in material changes in the final data.

From time to time, we may publicly disclose preliminary, interim or topline data from our preclinical studies and clinical trials, which is based on a preliminary analysis of then-available data, and the results and related findings and conclusions are subject to change as patient enrollment and treatment continues and more patient data become available. For example, we have reported interim data from our ongoing clinical trial of P-BCMA-101 elsewhere in this prospectus. Adverse differences between previous preliminary or interim data

and future interim or final data could significantly harm our business prospects. We may also announce topline data following the completion of a preclinical study or clinical trial, which may be subject to change following a more comprehensive review of the data related to the particular study or trial. We also make assumptions, estimations, calculations and conclusions as part of our analyses of data, and we may not have received or had the opportunity to fully and carefully evaluate all data. As a result, the interim, topline or preliminary results that we report may differ from future results of the same studies, or different conclusions or considerations may qualify such results, once additional data have been received and fully evaluated. Topline data also remain subject to audit and verification procedures that may result in the final data being materially different from the preliminary data we previously published. As a result, interim, topline and preliminary data should be viewed with caution until the final data are available.

Further, others, including regulatory agencies, may not accept or agree with our assumptions, estimates, calculations, conclusions or analyses or may interpret or weigh the importance of data differently, which could impact the value of the particular program, the approvability or commercialization of the particular product candidate or product and our company in general. In addition, the information we choose to publicly disclose regarding a particular study or clinical trial is based on what is typically extensive information, and you or others may not agree with what we determine to be material or otherwise appropriate information to include in our disclosure.

We may not ultimately realize the potential benefits of orphan drug designation for P-BCMA-101.

We received orphan drug designation for P-BCMA-101 for the treatment of relapsed/refractory multiple myeloma. The FDA grants orphan designation to drugs that are intended to treat rare diseases with fewer than 200,000 patients in the United States or that affect more than 200,000 persons but where there is no reasonable expectation to recover the costs of developing and marketing a treatment drug in the United States. In the United States, orphan drug designation entitles a party to financial incentives such as opportunities for grant funding towards clinical trial costs, tax advantages, and application fee waivers. After the FDA grants orphan drug designation, the generic identity of the drug and its potential orphan use are disclosed publicly by the FDA. However, orphan drug designation neither shortens the development time nor regulatory review time of a product candidate nor gives the candidate any advantage in the regulatory review or approval process.

In addition, if a product receives the first FDA approval for the indication for which it has orphan designation, the product is entitled to orphan drug exclusivity, which means the FDA may not approve any other application to market the same drug for the same indication for a period of seven years, except in limited circumstances, such as a showing of clinical superiority over the product with orphan exclusivity or where the manufacturer is unable to assure sufficient product quantity for the orphan patient population. Exclusive marketing rights in the United States may also be unavailable if we or our collaborators seek approval for an indication broader than the orphan designated indication and may be lost if the FDA later determines that the request for designation was materially defective. Even if we obtain orphan drug designation, we may not be the first to obtain marketing approval for any particular orphan indication due to the uncertainties associated with developing pharmaceutical products. Further, even if we obtain orphan drug exclusivity for a product candidate, that exclusivity may not effectively protect the product from competition because different drugs can be approved for the same condition.

We have received Regenerative Medicine Advanced Therapy, or RMAT, designation by the FDA for P-BCMA-101 for the treatment of multiple myeloma, and may seek RMAT designation for our other product candidates; however, such designations may not lead to a faster development or regulatory review or approval process and do not increase the likelihood that our product candidates will receive marketing approval.

In November 2018, we received RMAT designation for P-BCMA-101 for the treatment of multiple myeloma. In 2017, the FDA established the RMAT designation as part of its implementation of the 21st Century Cures Act. An investigational drug is eligible for RMAT designation if: (1) it meets the definition of a

regenerative medicine therapy, which is defined as a cell therapy, therapeutic tissue engineering product, human cell and tissue product, or any combination product using such therapies or products, with limited exceptions; (2) it is intended to treat, modify, reverse, or cure a serious disease or condition; and (3) preliminary clinical evidence indicates that the investigational drug has the potential to address unmet medical needs for such disease or condition. RMAT designation provides potential benefits that include more frequent meetings with FDA to discuss the development plan for the product candidate, and eligibility for rolling review of biologics license applications, or BLAs, and priority review. Product candidates granted RMAT designation may also be eligible for accelerated approval on the basis of a surrogate or intermediate endpoint reasonably likely to predict long-term clinical benefit, or reliance upon data obtained from a meaningful number of sites, including through expansion of clinical trials, as appropriate. RMAT-designated product candidates that receive accelerated approval may, as determined by the FDA, fulfill their post-approval requirements through the submission of clinical evidence, clinical studies, patient registries, or other sources of real world evidence (such as electronic health records), through the collection of larger confirmatory data sets, or via post-approval monitoring of all patients treated with such therapy prior to approval of the therapy.

RMAT designation does not change the standards for product approval, and there is no assurance that such designation or eligibility for such designation will result in expedited review or approval or that the approved indication will not be narrower than the indication covered by the RMAT designation. Additionally, RMAT designation can be revoked if the criteria for eligibility cease to be met as clinical data emerges.

Our product candidates must meet extensive regulatory requirements before they can be commercialized and any regulatory approval may contain limitations or conditions that require substantial additional development expenses or limit our ability to successfully commercialize the product.

The clinical development, manufacturing, labeling, storage, record-keeping, advertising, promotion, import, export, marketing and distribution of our product candidates are subject to extensive regulation by the FDA in the United States and by comparable foreign regulatory authorities in foreign markets. In the United States, we are not permitted to market our product candidates until we receive regulatory approval from the FDA. The process of obtaining regulatory approval is expensive, often takes many years following the commencement of clinical trials and can vary substantially based upon the type, complexity and novelty of the product candidates involved, as well as the target indications and patient population. Despite the time and expense invested in clinical development of product candidates, regulatory approval is never guaranteed.

To date, we have not submitted a BLA or other marketing authorization application to the FDA or similar drug approval submissions to comparable foreign regulatory authorities for any product candidate. With respect to P-BCMA-101, we currently intend to seek accelerated approval following the completion of our Phase 2 clinical trial. However, it is possible that at the time of a BLA submission, P-BCMA-101 would not be eligible for accelerated approval or the FDA could determine that accelerated approval is not warranted. Accelerated approval requires the data to indicate the drug candidate has an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit, or an effect on a clinical endpoint that can be measured earlier than an effect on irreversible morbidity or mortality that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments. In particular, because the FDA has already approved therapies for multiple myeloma, and because additional drugs may be approved for multiple myeloma while we are developing P-BCMA-101, it is difficult to predict whether accelerated approval will be possible for P-BCMA-101 at the time we expect to submit a BLA. The FDA has indicated that if data from our Phase 2 clinical trial do not provide evidence sufficient for accelerated approval, that additional clinical testing would be required to support approval, with a preference for us to conduct a randomized controlled trial or trials. While we intend to initiate a randomized Phase 3 clinical trial for P-BCMA-101 following the enrollment of the Phase 2 clinical trial regardless, if we were unable to obtain accelerated approval based on the results of our Phase 2 clinical trial, it would represent a significant delay in the approval of, and our ability to commercialize, P-BCMA-101.

Prior to obtaining approval to commercialize a product candidate in the United States or abroad, we or our potential future collaborators must demonstrate with substantial evidence from adequate and well-controlled clinical trials, and to the satisfaction of the FDA or comparable foreign regulatory authorities, that such product candidates are safe and effective for their intended uses. Even if we believe the preclinical or clinical data for our product candidates are promising, such data may not be sufficient to support approval by the FDA and comparable foreign regulatory authorities. In particular, because we are seeking to identify and develop product candidates using new technologies, there is heightened risk that the FDA or other regulatory authorities may impose additional requirements prior to granting marketing approval, including enhanced safety studies or monitoring. Furthermore, as more product candidates within a particular class of products proceed through clinical development to regulatory review and approval, the amount and type of clinical data that may be required by regulatory authorities may increase or change.

The FDA or comparable foreign regulatory authorities can delay, limit or deny approval of a product candidate for many reasons, including:

- such authorities may disagree with the design or implementation of our clinical trials;
- negative or ambiguous results from our clinical trials or results may not meet the level of statistical significance required by the FDA or comparable foreign regulatory agencies for approval;
- serious and unexpected product-related side effects may be experienced by participants in our clinical trials or by individuals using biological products similar to our product candidates;
- the population studied in the clinical trial may not be sufficiently broad or representative to assure safety in the full population for which we seek approval;
- such authorities may not accept clinical data from trials which are conducted at clinical facilities or in countries where the standard of care is potentially different from that of the United States;
- we may be unable to demonstrate that a product candidate’s clinical and other benefits outweigh its safety risks;
- such authorities may disagree with our interpretation of data from preclinical studies or clinical trials;
- such authorities may not agree that the data collected from clinical trials of our product candidates are acceptable or sufficient to support the submission of an application for regulatory approval or other submissions or to obtain regulatory approval in the United States or elsewhere, including due to clinical trial issues encountered as a result of COVID-19 pandemic, and such authorities may impose requirements for additional preclinical studies or clinical trials;
- such authorities may disagree regarding the formulation, labeling and/or the specifications of our product candidates;
- approval may be granted only for indications that are significantly more limited than what we apply for and/or with other significant restrictions on distribution and use;
- such authorities may fail to approve any required companion diagnostics to be used with our product candidates;
- such authorities may find deficiencies in the manufacturing processes or facilities of our third-party manufacturers with which we or any of our potential future collaborators contract for clinical and commercial supplies; or

- the approval policies or regulations of such authorities may significantly change in a manner rendering our or any of our potential future collaborators' clinical data insufficient for approval.

With respect to foreign markets, approval procedures vary among countries and, in addition to the foregoing risks, may involve additional product testing, administrative review periods and agreements with pricing authorities. In addition, events raising questions about the safety of certain marketed pharmaceuticals may result in increased cautiousness by the FDA and comparable foreign regulatory authorities in reviewing new products based on safety, efficacy or other regulatory considerations and may result in significant delays in obtaining regulatory approvals.

Even if we eventually complete clinical trials and receive approval to commercialize our product candidates, the FDA or comparable foreign regulatory authority may grant approval contingent on the performance of costly additional clinical trials, including Phase 4 clinical trials, and/or the implementation of a REMS. The FDA or the comparable foreign regulatory authority also may approve a product candidate for a more limited indication or patient population than we originally requested or may not approve the labeling that we believe is necessary or desirable for the successful commercialization of a product. Manufacturers of our products and manufacturers' facilities are also required to comply with cGMP regulations, which include requirements related to quality control and quality assurance, as well as the corresponding maintenance of records and documentation. Further, regulatory authorities must approve these manufacturing facilities before they can be used to manufacture our products, and these facilities are subject to continual review and periodic inspections by the FDA and other comparable foreign regulatory authorities for compliance with cGMP regulations.

Any delay in obtaining, or inability to obtain, applicable regulatory approval would delay or prevent commercialization of that product candidate and would materially and adversely impact our business and prospects.

Even if we receive regulatory approval for any of our product candidates, we will be subject to ongoing obligations and continued regulatory review, which may result in significant additional expense. Additionally, our product candidates, if approved, could be subject to labeling and other restrictions and market withdrawal and we may be subject to penalties if we fail to comply with regulatory requirements or experience unanticipated problems with our products.

If the FDA, EMA or any other comparable regulatory authority approves any of our product candidates, the manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion and recordkeeping for the product will be subject to extensive and ongoing regulatory requirements. These requirements include submissions of safety and other post-marketing information and reports, registration requirements and continued compliance with cGMPs and GCP, for any clinical trials that we conduct post-approval. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with our third-party manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in, among other things:

- restrictions on the marketing or manufacturing of the product, withdrawal of the product from the market, or voluntary product recalls;
- fines, untitled or warning letters or holds on clinical trials;
- refusal by the FDA, the EMA or any other comparable regulatory authority to approve pending applications or supplements to approved applications filed by us, or suspension or revocation of product approvals;
- product seizure or detention, or refusal to permit the import or export of products; and
- injunctions or the imposition of civil or criminal penalties.

Moreover, if any of our product candidates are approved, our product labeling, advertising and promotion will be subject to regulatory requirements and continuing regulatory review. The FDA strictly regulates the promotional claims that may be made about biopharmaceutical products. In particular, a product may not be promoted for uses that are not approved by the FDA as reflected in the product's approved labeling.

Any government investigation of alleged violations of law could require us to expend significant time and resources in response and could generate negative publicity. The occurrence of any event or penalty described above may inhibit our or our collaborators' ability to commercialize our product candidates, and harm our business, financial condition and results of operations.

In addition, the policies of the FDA, the EMA and other comparable regulatory authorities may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained, which would adversely affect our business, prospects and ability to achieve or sustain profitability.

We also cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or administrative or executive action, either in the United States or abroad. For example, certain policies of the Trump administration may impact our business and industry. Namely, the Trump administration has taken several executive actions, including the issuance of a number of Executive Orders, that could impose significant burdens on, or otherwise materially delay, the FDA's ability to engage in routine oversight activities such as implementing statutes through rulemaking, issuance of guidance and review and approval of marketing applications. It is difficult to predict how these requirements will be implemented, and the extent to which they will impact the FDA's ability to exercise its regulatory authority. If these executive actions impose restrictions on the FDA's ability to engage in oversight and implementation activities in the normal course, our business may be negatively impacted. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements, or if we are unable to maintain regulatory compliance, marketing approval that has been obtained may be lost and we may not achieve or sustain profitability.

Disruptions at the FDA and other government agencies caused by funding shortages or global health concerns could hinder their ability to hire, retain or deploy key leadership and other personnel, or otherwise prevent new or modified products from being developed, or approved or commercialized in a timely manner or at all, which could negatively impact our business.

The ability of the FDA to review and approve new products can be affected by a variety of factors, including government budget and funding levels, statutory, regulatory, and policy changes, the FDA's ability to hire and retain key personnel and accept the payment of user fees, and other events that may otherwise affect the FDA's ability to perform routine functions. Average review times at the agency have fluctuated in recent years as a result. In addition, government funding of other government agencies that fund research and development activities is subject to the political process, which is inherently fluid and unpredictable. Disruptions at the FDA and other agencies may also slow the time necessary for new biologics to be reviewed and/or approved by necessary government agencies, which would adversely affect our business. For example, over the last several years, including for 35 days beginning on December 22, 2018, the U.S. government has shut down several times and certain regulatory agencies, such as the FDA, have had to furlough critical FDA employees and stop critical activities.

Separately, in response to the global COVID-19 pandemic, on March 10, 2020 the FDA announced its intention to postpone most foreign inspections of manufacturing facilities and products, and subsequently, on March 18, 2020, the FDA announced its intention to temporarily postpone routine surveillance inspections of domestic manufacturing facilities. Regulatory authorities outside the United States may adopt similar restrictions or other policy measures in response to the COVID-19 pandemic. If a prolonged government shutdown occurs,

or if global health concerns continue to prevent the FDA or other regulatory authorities from conducting their regular inspections, reviews, or other regulatory activities, it could significantly impact the ability of the FDA or other regulatory authorities to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

We may expend our limited resources to pursue a particular product candidate or indication and fail to capitalize on product candidates or indications that may be more profitable or for which there is a greater likelihood of success.

Because we have limited financial and managerial resources, we must prioritize our research programs and will need to focus our discovery and development on select product candidates and indications. Correctly prioritizing our research and development activities is particularly important for us due to the breadth of potential product candidates and indications that we believe could be pursued using our platform technologies. As a result, we may forego or delay pursuit of opportunities with other product candidates or for other indications that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs and product candidates for specific indications may not yield any commercially viable products. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may also relinquish valuable rights to that product candidate through collaboration, licensing or other royalty arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such product candidate.

We may not be successful in our efforts to identify or discover additional product candidates in the future.

Our research programs may initially show promise in identifying potential product candidates, yet fail to yield product candidates for clinical development for a number of reasons, including:

- our inability to design such product candidates with the properties that we desire; or
- potential product candidates may, on further study, be shown to have harmful side effects or other characteristics that indicate that they are unlikely to be products that will receive marketing approval and achieve market acceptance.

Research programs to identify new product candidates require substantial technical, financial and human resources. If we are unable to identify suitable additional candidates for preclinical and clinical development, our opportunities to successfully develop and commercialize therapeutic products will be limited.

Risks Related to Manufacturing, Commercialization and Reliance on Third Parties

We rely on third parties to conduct our clinical trials and perform some of our research and preclinical studies. If these third parties do not satisfactorily carry out their contractual duties or fail to meet expected deadlines, our development programs may be delayed or subject to increased costs, each of which may have an adverse effect on our business and prospects.

We do not have the ability to conduct all aspects of our preclinical testing or clinical trials ourselves. As a result, we are and expect to remain dependent on third parties to conduct our ongoing Phase 1 and Phase 2 clinical trials and any future clinical trials of our product candidates. Specifically, CROs, clinical investigators, and consultants play a significant role in the conduct of these trials and the subsequent collection and analysis of data. However, we will not be able to control all aspects of their activities. Nevertheless, we are responsible for ensuring that each of our trials is conducted in accordance with the applicable protocol and legal, regulatory and scientific standards, and our reliance on the CROs and other third parties does not relieve us of our regulatory responsibilities. We and our CROs are required to comply with GCP requirements, which are regulations and

guidelines enforced by the FDA, the Competent Authorities of the Member States of the European Economic Area, and comparable foreign regulatory authorities for all of our product candidates in clinical development. Regulatory authorities enforce these GCP requirements through periodic inspections of trial sponsors, clinical trial investigators and clinical trial sites. If we or any of our CROs or clinical trial sites fail to comply with applicable GCP requirements, the data generated in our clinical trials may be deemed unreliable, and the FDA or comparable foreign regulatory authorities may require us to perform additional clinical trials before approving our marketing applications. In addition, our clinical trials must be conducted with product produced under cGMP regulations. Our failure to comply with these regulations may require us to stop and/or repeat clinical trials, which would delay the marketing approval process.

There is no guarantee that any such CROs, clinical trial investigators or other third parties on which we rely will devote adequate time and resources to our development activities or perform as contractually required. These risks are heightened as a result of the efforts of government agencies and the CROs themselves to limit the spread of COVID-19, including quarantines and shelter-in-place orders. If any of these third parties fail to meet expected deadlines, adhere to our clinical protocols or meet regulatory requirements, otherwise performs in a substandard manner, or terminates its engagement with us, the timelines for our development programs may be extended or delayed or our development activities may be suspended or terminated. If any of our clinical trial sites terminates for any reason, we may experience the loss of follow-up information on subjects enrolled in such clinical trials unless we are able to transfer those subjects to another qualified clinical trial site, which may be difficult or impossible. In addition, clinical trial investigators for our clinical trials may serve as scientific advisors or consultants to us from time to time and may receive cash or equity compensation in connection with such services. If these relationships and any related compensation result in perceived or actual conflicts of interest, or the FDA or any comparable foreign regulatory authority concludes that the financial relationship may have affected the interpretation of the trial, the integrity of the data generated at the applicable clinical trial site may be questioned and the utility of the clinical trial itself may be jeopardized, which could result in the delay or rejection of any marketing application we submit by the FDA or any comparable foreign regulatory authority. Any such delay or rejection could prevent us from commercializing our product candidates.

Furthermore, these third parties may also have relationships with other entities, some of which may be our competitors. If these third parties do not successfully carry out their contractual duties, meet expected deadlines or conduct our clinical trials in accordance with regulatory requirements or our stated protocols, we will not be able to obtain, or may be delayed in obtaining, marketing approvals for our product candidates and will not be able to, or may be delayed in our efforts to, successfully commercialize our products.

We contract with third parties for the manufacturing and supply of certain of our product candidates for use in preclinical testing and clinical trials, which supply may become limited or interrupted or may not be of satisfactory quality and quantity.

We do not have any manufacturing facilities. We produce in our laboratory relatively small quantities of product for evaluation in our research programs. We rely on third parties for the manufacture of certain of our product candidates for preclinical and clinical testing and may continue to rely on such third parties for commercial manufacture if any of our product candidates are approved. We are constructing a pilot manufacturing facility, which we expect to be completed by the end of 2020, to be used to develop and manufacture preclinical and clinical material for future clinical trials for certain product candidates. We may encounter delays, quality or other issues if and when we begin to use our pilot manufacturing facility for clinical supply. Even after the pilot manufacturing facility is completed, validated and qualified, we expect that we will continue to rely on third parties for various manufacturing needs. We currently have limited manufacturing arrangements and expect that each of our product candidates will only be covered by single source suppliers for the foreseeable future. This reliance increases the risk that we will not have sufficient quantities of our product candidates or products, if approved, or such quantities at an acceptable cost or quality, which could delay, prevent or impair our development or commercialization efforts.

Furthermore, all entities involved in the preparation of therapeutics for clinical trials or commercial sale, including our existing contract manufacturers for our product candidates, are subject to extensive regulation. Components of a finished therapeutic product approved for commercial sale or used in clinical trials must be manufactured in accordance with cGMP requirements. These regulations govern manufacturing processes and procedures, including record keeping, and the implementation and operation of quality systems to control and assure the quality of investigational products and products approved for sale. Poor control of production processes can lead to the introduction of contaminants, or to inadvertent changes in the properties or stability of our product candidates that may not be detectable in final product testing. We or our contract manufacturers must supply all necessary documentation in support of a BLA on a timely basis and must adhere to the FDA's Good Laboratory Practice regulations and cGMP regulations enforced by the FDA through its facilities inspection program. Comparable foreign regulatory authorities may require compliance with similar requirements. Our facilities and quality systems, and those of our third-party contract manufacturers, must pass a pre-approval inspection for compliance with the applicable regulations as a condition of marketing approval of our product candidates. We do not control the manufacturing activities of, and are completely dependent on, our contract manufacturers for compliance with cGMP regulations.

In the event that any of our manufacturers fails to comply with such requirements or to perform its obligations to us in relation to quality, timing or otherwise, or if our supply of components or other materials becomes limited or interrupted for other reasons, including due to the impact of the COVID-19 pandemic, we may be forced to manufacture the materials ourselves, for which we currently do not have the capabilities or resources, or enter into an agreement with another third-party, which we may not be able to do on commercially reasonable terms, if at all. In particular, any replacement of our manufacturers could require significant effort and expertise because there may be a limited number of qualified replacements. In some cases, the technical skills or technology required to manufacture our product candidates may be unique or proprietary to the original manufacturer and we may have difficulty transferring such skills or technology to another third-party and a feasible alternative may not exist. In addition, certain of our product candidates and our own proprietary methods have never been produced or implemented outside of our company, and we may therefore experience delays to our development programs if and when we attempt to establish new third-party manufacturing arrangements for these product candidates or methods. These factors would increase our reliance on such manufacturer or require us to obtain a license from such manufacturer in order to have another third-party manufacture our product candidates. If we are required to or voluntarily change manufacturers for any reason, we will be required to verify that the new manufacturer maintains facilities and procedures that comply with quality standards and with all applicable regulations and guidelines. The delays associated with the verification of a new manufacturer could negatively affect our ability to develop product candidates in a timely manner or within budget.

Our or a third-party's failure to execute on our manufacturing requirements, do so on commercially reasonable terms and comply with cGMP could adversely affect our business in a number of ways, including:

- an inability to initiate or continue clinical trials of our product candidates under development;
- delay in submitting regulatory applications, or receiving marketing approvals, for our product candidates;
- loss of the cooperation of future collaborators;
- subjecting third-party manufacturing facilities or our manufacturing facilities to additional inspections by regulatory authorities;
- requirements to cease development or to recall batches of our product candidates; and
- in the event of approval to market and commercialize our product candidates, an inability to meet commercial demands for our product or any other future product candidates.

Manufacturing gene engineered products is complex and we or our third-party manufacturers may encounter difficulties in production. If we or any of our third-party manufacturers encounter such difficulties, our ability to provide supply of our product candidates for clinical trials or our products for patients, if approved, could be delayed or prevented.

Manufacturing gene engineered products is complex and may require the use of innovative technologies to handle living cells. Manufacturing these products requires facilities specifically designed for and validated for this purpose and sophisticated quality assurance and quality control procedures are necessary. Slight deviations anywhere in the manufacturing process, including filling, labeling, packaging, storage and shipping and quality control and testing, may result in lot failures, product recalls or spoilage. When changes are made to the manufacturing process, we may be required to provide preclinical and clinical data showing the comparable identity, strength, quality, purity or potency of the products before and after such changes. If microbial, viral or other contaminations are discovered at manufacturing facilities, such facilities may need to be closed for an extended period of time to investigate and remedy the contamination, which could delay clinical trials and adversely harm our business. The use of biologically derived ingredients can also lead to allegations of harm, including infections or allergic reactions, or closure of product facilities due to possible contamination.

In addition, there are risks associated with large scale manufacturing for clinical trials or commercial scale including, among others, cost overruns, potential problems with process scale-up, process reproducibility, stability issues, compliance with good manufacturing practices, lot consistency and timely availability of raw materials. Even if we obtain marketing approval for any of our product candidates, there is no assurance that we or our manufacturers will be able to manufacture the approved product to specifications acceptable to the FDA or other comparable foreign regulatory authorities, to produce it in sufficient quantities to meet the requirements for the potential commercial launch of the product or to meet potential future demand. If we or our manufacturers are unable to produce sufficient quantities for clinical trials or for commercialization, our development and commercialization efforts would be impaired, which would have an adverse effect on our business, financial condition, results of operations and growth prospects.

Changes in methods of product candidate manufacturing may result in additional costs or delays.

As product candidates progress through preclinical to late-stage clinical trials to marketing approval and commercialization, it is common that various aspects of the development program, such as manufacturing methods, are altered along the way in an effort to optimize yield, manufacturing batch size, minimize costs and achieve consistent quality and results. Such changes carry the risk that they will not achieve these intended objectives. For example, prior to initiating the exploratory cohorts of our ongoing Phase 1 clinical trial, we began manufacturing P-BCMA-101 product at a different facility using revised methods from those used in manufacturing the P-BCMA-101 product that was administered to patients enrolled under the original Phase 1 protocol and for which interim data is contained in this prospectus. Any of these changes could cause our product candidates to perform differently and affect the results of planned clinical trials or other future clinical trials conducted with the altered materials. This could delay completion of clinical trials, require the conduct of bridging clinical trials or the repetition of one or more clinical trials, increase clinical trial costs, delay approval of our product candidates and jeopardize our ability to commercialize our product candidates and generate revenue.

Any approved products may fail to achieve the degree of market acceptance by physicians, patients, hospitals, cancer treatment centers, healthcare payors and others in the medical community necessary for commercial success.

If any of our product candidates receive marketing approval, they may nonetheless fail to gain sufficient market acceptance by physicians, patients, healthcare payors and others in the medical community. For example, current cancer treatments like chemotherapy and radiation therapy are well established in the medical community, and physicians may continue to rely on these treatments. Most of our product candidates target

mechanisms for which there are limited or no currently approved products, which may result in slower adoption by physicians, patients and payors. If our product candidates do not achieve an adequate level of acceptance, we may not generate significant product revenue and we may not become profitable. The degree of market acceptance of our product candidates, if approved for commercial sale, will depend on a number of factors, including:

- efficacy and potential advantages compared to alternative treatments;
- our ability to offer our products for sale at competitive prices;
- convenience and ease of administration compared to alternative treatments;
- the willingness of the target patient population to try new therapies and of physicians to prescribe these therapies;
- the strength of marketing and distribution support; and
- the prevalence and severity of any side effects.

We may not be able to successfully commercialize our product candidates due to unfavorable pricing regulations or third-party coverage and reimbursement policies, which could make it difficult for us to sell our product candidates profitably.

Obtaining coverage and reimbursement approval for a product from a government or other third-party payor is a time-consuming and costly process, with uncertain results, that could require us to provide supporting scientific, clinical and cost effectiveness data for the use of our products to the payor. There may be significant delays in obtaining such coverage and reimbursement for newly approved products, and coverage may not be available, or may be more limited than the purposes for which the product is approved by the FDA or comparable foreign regulatory authorities. Moreover, eligibility for coverage and reimbursement does not imply that a product will be paid for in all cases or at a rate that covers our costs, including research, development, intellectual property, manufacture, sale and distribution expenses. Interim reimbursement levels for new products, if applicable, may also not be sufficient to cover our costs and may not be made permanent. Reimbursement rates may vary according to the use of the product and the clinical setting in which it is used, may be based on reimbursement levels already set for lower cost products and may be incorporated into existing payments for other services. Net prices for products may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors, by any future laws limiting drug prices and by any future relaxation of laws that presently restrict imports of product from countries where they may be sold at lower prices than in the United States.

There is significant uncertainty related to the insurance coverage and reimbursement of newly approved products. In the United States, there is no uniform policy among third-party payors for coverage and reimbursement. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting reimbursement policies, but also have their own methods and approval process apart from Medicare coverage and reimbursement determinations. Therefore, one third-party payor’s determination to provide coverage for a product does not assure that other payors will also provide coverage for the product.

Coverage and reimbursement by a third-party payor may depend upon a number of factors, including the third-party payor’s determination that use of a product is:

- a covered benefit under its health plan;
- safe, effective and medically necessary;

- appropriate for the specific patient;
- cost-effective; and
- neither experimental nor investigational.

We cannot be sure that reimbursement will be available for any product that we commercialize and, if coverage and reimbursement are available, what the level of reimbursement will be. Obtaining reimbursement for our products may be particularly difficult because of the higher prices often associated with branded therapeutics and therapeutics administered under the supervision of a physician. Our inability to promptly obtain coverage and adequate reimbursement rates from both government-funded and private payors for any approved products that we develop could have a material adverse effect on our operating results, our ability to raise capital needed to commercialize products and our overall financial condition.

Reimbursement may impact the demand for, and the price of, any product for which we obtain marketing approval. Assuming we obtain coverage for a given product by a third-party payor, the resulting reimbursement payment rates may not be adequate or may require co-payments that patients find unacceptably high. Patients who are prescribed medications for the treatment of their conditions, and their prescribing physicians, generally rely on third-party payors to reimburse all or part of the costs associated with those medications. Patients are unlikely to use our products unless coverage is provided and reimbursement is adequate to cover all or a significant portion of the cost of our products. Therefore, coverage and adequate reimbursement is critical to a new product's acceptance. Coverage decisions may depend upon clinical and economic standards that disfavor new products when more established or lower cost therapeutic alternatives are already available or subsequently become available.

For products administered under the supervision of a physician, obtaining coverage and adequate reimbursement may be particularly difficult because of the higher prices often associated with such drugs. Additionally, separate reimbursement for the product itself may or may not be available. Instead, the hospital or administering physician may be reimbursed only for providing the treatment or procedure in which our product is used. Further, from time to time, CMS revises the reimbursement systems used to reimburse health care providers, including the Medicare Physician Fee Schedule and Hospital Outpatient Prospective Payment System, which may result in reduced Medicare payments.

We expect to experience pricing pressures in connection with the sale of any of our product candidates due to the trend toward managed healthcare, the increasing influence of health maintenance organizations, and additional legislative changes. The downward pressure on healthcare costs in general, particularly prescription medicines, medical devices and surgical procedures and other treatments, has become very intense. As a result, increasingly high barriers are being erected to the successful commercialization of new products. Further, the adoption and implementation of any future governmental cost containment or other health reform initiative may result in additional downward pressure on the price that we may receive for any approved product.

Additionally, we or collaborators may develop companion diagnostic tests for use with our product candidates. We, or our collaborators, will be required to obtain coverage and reimbursement for these tests separate and apart from the coverage and reimbursement we may seek for our product candidates. While we have not yet developed any companion diagnostic tests for our product candidates, if we do, there is significant uncertainty regarding our ability to obtain coverage and adequate reimbursement for the same reasons applicable to our product candidates.

Outside of the United States, many countries require approval of the sale price of a product before it can be marketed, and the pricing review period only begins after marketing or product licensing approval is granted. To obtain reimbursement or pricing approval in some of these countries, we may be required to conduct a clinical trial that compares the cost-effectiveness of our product candidate to other available therapies. In some foreign

markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we might obtain marketing approval for a product candidate in a particular country, but then be subject to price regulations that delay our commercial launch of the product, possibly for lengthy time periods, and negatively impact the revenue, if any, we are able to generate from the sale of the product in that country. Adverse pricing limitations may hinder our ability to recoup our investment in one or more product candidates, even if such product candidates obtain marketing approval.

Our product candidates for which we intend to seek approval as biologic products may face competition sooner than anticipated.

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010, or collectively, the Affordable Care Act, signed into law on March 23, 2010, includes a subtitle called the Biologics Price Competition and Innovation Act of 2009, or BPCIA, which created an abbreviated approval pathway for biological products that are biosimilar to or interchangeable with an FDA-licensed reference biological product. Under the BPCIA, an application for a biosimilar product may not be submitted to the FDA until four years following the date that the reference product was first licensed by the FDA. In addition, the approval of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first licensed. During this 12-year period of exclusivity, another company may still market a competing version of the reference product if the FDA approves a full BLA for the competing product containing the sponsor's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and potency of their product.

We believe that any of our product candidates approved as a biological product under a BLA should qualify for the 12-year period of exclusivity. However, there is a risk that this exclusivity could be shortened due to congressional action or otherwise, or that the FDA will not consider our product candidates to be reference products for competing products, potentially creating the opportunity for generic competition sooner than anticipated. Other aspects of the BPCIA, some of which may impact the BPCIA exclusivity provisions, have also been the subject of recent litigation. Moreover, the extent to which a biosimilar, once approved, will be substituted for any one of our reference products in a way that is similar to traditional generic substitution for non-biological products is not yet clear, and will depend on a number of marketplace and regulatory factors that are still developing.

If any approved products are subject to biosimilar competition sooner than we expect, we will face significant pricing pressure and our commercial opportunity will be limited.

If the market opportunities for any of our product candidates are smaller than we believe they are, our revenue may be adversely affected, and our business may suffer.

We are focused initially on the development of treatments for cancer. Our projections of addressable patient populations that have the potential to benefit from treatment with our product candidates are based on estimates. If any of our estimates are inaccurate, the market opportunities for any of our product candidates could be significantly diminished and have an adverse material impact on our business.

Our reliance on third parties requires us to share our trade secrets, which increases the possibility that a competitor will discover them or that our trade secrets will be misappropriated or disclosed.

Because we rely on third parties to research and develop and to manufacture our product candidates, we must share trade secrets with them. We seek to protect our proprietary technology in part by entering into confidentiality agreements and, if applicable, material transfer agreements, consulting agreements or other similar agreements with our advisors, employees, third-party contractors and consultants prior to beginning research or disclosing proprietary information. These agreements typically limit the rights of the third parties to use or disclose our confidential information, including our trade secrets. Despite the contractual provisions

employed when working with third parties, the need to share trade secrets and other confidential information increases the risk that such trade secrets become known by our competitors, are inadvertently incorporated into the technology of others, or are disclosed or used in violation of these agreements. Given that our proprietary position is based, in part, on our know-how and trade secrets, a competitor's independent discovery of our trade secrets or other unauthorized use or disclosure would impair our competitive position and may have a material adverse effect on our business.

In addition, these agreements typically restrict the ability of our advisors, employees, third-party contractors and consultants to publish data potentially relating to our trade secrets, although our agreements may contain certain limited publication rights. For example, any academic institution that we may collaborate with will likely expect to be granted rights to publish data arising out of such collaboration and any joint research and development programs may require us to share trade secrets under the terms of our research and development or similar agreements. Despite our efforts to protect our trade secrets, our competitors may discover our trade secrets, either through breach of our agreements with third parties, independent development or publication of information by any of our third-party collaborators. A competitor's discovery of our trade secrets would impair our competitive position and have an adverse impact on our business.

If any of our product candidates are approved for marketing and commercialization and we are unable to establish sales and marketing capabilities or enter into agreements with third parties to sell and market our product candidates, we will be unable to successfully commercialize our product candidates if and when they are approved.

We have no sales, marketing or distribution capabilities or experience. To achieve commercial success for any approved product for which we retain sales and marketing responsibilities, we must either develop a sales and marketing organization, which would be expensive and time consuming, or outsource these functions to other third parties. In the future, we may choose to build a focused sales and marketing infrastructure to sell, or participate in sales activities with our collaborators for, some of our product candidates if and when they are approved.

There are risks involved with both establishing our own sales and marketing capabilities and entering into arrangements with third parties to perform these services. For example, recruiting and training a sales force is expensive and time consuming and could delay any product launch. If the commercial launch of a product candidate for which we recruit a sales force and establish marketing capabilities is delayed or does not occur for any reason, we would have prematurely or unnecessarily incurred these commercialization expenses. This may be costly, and our investment would be lost if we cannot retain or reposition our sales and marketing personnel.

Factors that may inhibit our efforts to commercialize future products on our own include:

- our inability to recruit and retain adequate numbers of effective sales and marketing personnel;
- the inability of sales personnel to obtain access to physicians or persuade adequate numbers of physicians to prescribe any future products;
- the lack of complementary products to be offered by sales personnel, which may put us at a competitive disadvantage relative to companies with more extensive product portfolios; and
- unforeseen costs and expenses associated with creating an independent sales and marketing organization.

If we enter into arrangements with third parties to perform sales, marketing and distribution services, our product revenue or the profitability of these product revenue to us are likely to be lower than if we were to market and sell any products that we develop ourselves. In addition, we may not be successful in entering into

arrangements with third parties to sell and market our product candidates or may be unable to do so on terms that are favorable to us. In entering into third-party marketing or distribution arrangements, any revenue we receive will depend upon the efforts of the third parties and we cannot assure you that such third parties will establish adequate sales and distribution capabilities or devote the necessary resources and attention to sell and market any future products effectively. If we do not establish sales and marketing capabilities successfully, either on our own or in collaboration with third parties, we will not be successful in commercializing our product candidates.

Even if we obtain FDA approval of any of our product candidates, we may never obtain approval or commercialize such products outside of the United States, which would limit our ability to realize their full market potential.

In order to market any products outside of the United States, we must establish and comply with numerous and varying regulatory requirements of other countries regarding safety and efficacy. Clinical trials conducted in one country may not be accepted by regulatory authorities in other countries, and regulatory approval in one country does not mean that regulatory approval will be obtained in any other country. Approval procedures vary among countries and can involve additional product testing and validation and additional administrative review periods. Seeking foreign regulatory approvals could result in significant delays, difficulties and costs for us and may require additional preclinical studies or clinical trials which would be costly and time consuming. Regulatory requirements can vary widely from country to country and could delay or prevent the introduction of our products in those countries. Satisfying these and other regulatory requirements is costly, time consuming, uncertain and subject to unanticipated delays. In addition, our failure to obtain regulatory approval in any country may delay or have negative effects on the process for regulatory approval in other countries. We do not have any product candidates approved for sale in any jurisdiction, including international markets, and we do not have experience in obtaining regulatory approval in international markets. If we fail to comply with regulatory requirements in international markets or to obtain and maintain required approvals, our ability to realize the full market potential of our products will be harmed.

Risks Related to Our In-Licenses and Other Strategic Agreements

We are currently party to several in-license agreements under which we acquired rights to use, develop, manufacture and/or commercialize certain of our platform technologies and resulting product candidates. If we breach our obligations under these agreements, we may be required to pay damages, lose our rights to these technologies or both, which would adversely affect our business and prospects.

We rely, in part, on license and other strategic agreements, which subject us to various obligations, including diligence obligations with respect to development and commercialization activities, payment obligations for achievement of certain milestones and royalties on product sales, negative covenants and other material obligations. For example, with respect to P-BCMA-101 and P-PSMA-101, we have licensed Centyrin binders under an agreement with Janssen Biotech Inc., or Janssen, with respect to P-BCMA-ALLO1, we have licensed heavy-chain-only binders under an agreement with TeneoBio, Inc., or TeneoBio, with respect to P-MUC1C-ALLO1, we have licensed potential binders under our agreements with Genus Oncology, LLC, or Genus, and TeneoBio, with respect to P-PSMA-ALLO1 and our Dual CAR programs we may license binders under our agreements with TeneoBio, and with respect to our Cas-CLOVER gene editing technology, which we use in the manufacture of P-BCMA-ALLO1, P-MUC1C-ALLO1, P-PSMA-ALLO1 and future allogeneic products, we have licensed certain intellectual property under an agreement with Helmholtz-Zentrum München—Deutsches Forschungszentrum für Gesundheit und Umwelt GmbH. If we fail to comply with the obligations under our license agreements, including as a result of COVID-19 impacting our operations, or use the intellectual property licensed to us in an unauthorized manner, we may be required to pay damages and our licensors may have the right to terminate the license. If our license agreements are terminated, we may not be able to develop, manufacture, market or sell the products covered by our agreements and those being tested or approved in combination with such products. Such an occurrence could materially adversely affect the value of the product candidates being developed under any such agreement.

In addition, the agreements under which we license intellectual property or technology to or from third parties are complex, and certain provisions in such agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology or increase what we believe to be our financial or other obligations under the relevant agreement, either of which could have a material adverse effect on our business, financial condition, results of operations and prospects. Moreover, if disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on commercially acceptable terms, we may be unable to successfully develop and commercialize the affected product candidates.

Our business also would suffer if any current or future licensors fail to abide by the terms of the license, if the licensors fail to enforce licensed patents against infringing third parties, if the licensed patents or other rights are found to be invalid or unenforceable, or if we are unable to enter into necessary licenses on acceptable terms. Moreover, our licensors may own or control intellectual property that has not been licensed to us and, as a result, we may be subject to claims, regardless of their merit, that we are infringing or otherwise violating the licensor's rights.

In addition, while we cannot currently determine the amount of the royalty obligations we would be required to pay on sales of future products, if any, the amounts may be significant. The amount of our future royalty obligations will depend on the technology and intellectual property we use in products that we successfully develop and commercialize, if any. Therefore, even if we successfully develop and commercialize products, we may be unable to achieve or maintain profitability.

If we are unable to successfully obtain rights to required third-party intellectual property rights or maintain the existing intellectual property rights we have, we may have to abandon development of the relevant research programs or product candidates and our business, financial condition, results of operations and prospects could suffer.

We may not realize the benefits of any acquisitions, in-license or strategic alliances that we enter into.

We have entered into in-license agreements with multiple licensors and in the future may seek and form strategic alliances, create joint ventures or collaborations, or enter into acquisitions or additional licensing arrangements with third parties that we believe will complement or augment our existing technologies and product candidates.

These transactions can entail numerous operational and financial risks, including exposure to unknown liabilities, disruption of our business and diversion of our management's time and attention in order to manage a collaboration or develop acquired products, product candidates or technologies, incurrence of substantial debt or dilutive issuances of equity securities to pay transaction consideration or costs, higher than expected collaboration, acquisition or integration costs, write-downs of assets or goodwill or impairment charges, increased amortization expenses, difficulty and cost in facilitating the collaboration or combining the operations and personnel of any acquired business, impairment of relationships with key suppliers, manufacturers or customers of any acquired business due to changes in management and ownership and the inability to retain key employees of any acquired business. As a result, if we enter into acquisition or in-license agreements or strategic partnerships, we may not be able to realize the benefit of such transactions if we are unable to successfully integrate them with our existing operations and company culture, or if there are materially adverse impacts on our or the counterparty's operations resulting from COVID-19, which could delay our timelines or otherwise adversely affect our business. We also cannot be certain that, following a strategic transaction or license, we will achieve the revenue or specific net income that justifies such transaction or such other benefits that led us to enter into the arrangement.

We may wish to form collaborations in the future with respect to our product candidates, but may not be able to do so or to realize the potential benefits of such transactions, which may cause us to alter or delay our development and commercialization plans.

The development and potential commercialization of our product candidates will require substantial additional capital to fund expenses. We may, in the future, decide to collaborate with other biopharmaceutical companies for the development and potential commercialization of those product candidates, including in territories outside the United States or for certain indications. We will face significant competition in seeking appropriate collaborators. We may not be successful in our efforts to establish a strategic partnership or other alternative arrangements for our product candidates because they may be deemed to be at too early of a stage of development for collaborative effort and third parties may not view our product candidates as having the requisite potential to demonstrate safety and efficacy. If and when we collaborate with a third-party for development and commercialization of a product candidate, we can expect to relinquish some or all of the control over the future success of that product candidate to the third-party. Our ability to reach a definitive agreement for a collaboration will depend, among other things, upon our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of our technologies, product candidates and market opportunities. The collaborator may also consider alternative product candidates or technologies for similar indications that may be available to collaborate on and whether such a collaboration could be more attractive than the one with us for our product candidate. We may also be restricted under any license agreements from entering into agreements on certain terms or at all with potential collaborators.

Collaborations are complex and time-consuming to negotiate and document. In addition, there have been a significant number of recent business combinations among large pharmaceutical companies that have resulted in a reduced number of potential future collaborators and changes to the strategies of the combined company. As a result, we may not be able to negotiate collaborations on a timely basis, on acceptable terms, or at all. If we are unable to do so, we may have to curtail the development of such product candidate, reduce or delay one or more of our other development programs, delay the potential commercialization or reduce the scope of any planned sales or marketing activities for such product candidate, or increase our expenditures and undertake development, manufacturing or commercialization activities at our own expense. If we elect to increase our expenditures to fund development, manufacturing or commercialization activities on our own, we may need to obtain additional capital, which may not be available to us on acceptable terms or at all. If we do not have sufficient funds, we may not be able to further develop our product candidates or bring them to market and generate product revenue.

Our product candidates may also require specific components to work effectively and efficiently, and rights to those components may be held by others. We may be unable to in-license any compositions, methods of use, processes or other third party intellectual property rights from third parties that we identify. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, which would harm our business. Even if we are able to obtain a license, it may be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. In that event, we may be required to expend significant time and resources to develop or license replacement technology.

Risks Related to Our Industry and Business Operations

The COVID-19 pandemic could continue to adversely impact our business, including our clinical trials, supply chain and business development activities.

In December 2019, COVID-19, a novel strain of coronavirus, was first reported in Wuhan, China and has since become a global pandemic. The President of the United States declared the COVID-19 pandemic a national emergency and many states and municipalities in the Unites States have announced aggressive actions to reduce the spread of the disease, including limiting non-essential gatherings of people, ceasing all non-essential

travel, ordering certain businesses and government agencies to cease non-essential operations at physical locations and issuing "shelter-in-place" orders which direct individuals to shelter at their places of residence (subject to limited exceptions). For example, on March 19, 2020, the Executive Department of the State of California issued Executive Order N-33-20, ordering all individuals in the State of California to stay at their place of residence except as needed to maintain continuity of operations of the federal critical infrastructure sectors. As a result of the California state order, almost all of our employees are currently telecommuting, which has impacted certain of our operations and may continue to do so over the long term. We may experience further limitations on employee resources in the future, including because of sickness of employees or their families. The effects of government actions and our own policies and those of third parties to reduce the spread of COVID-19 may negatively impact productivity and slow down or delay our ongoing and future clinical trials, preclinical studies and research and development activities, and may cause disruptions to our supply chain and impair our ability to execute our business development strategy. In the event that government authorities were to enhance current restrictions, our employees who currently are not telecommuting may no longer be able to access our facilities, and our operations may be further limited or curtailed.

As COVID-19 continues to spread, we may experience ongoing disruptions that could severely impact our business, preclinical studies and clinical trials, including:

- delays in receiving approval from local regulatory authorities to initiate our planned clinical trials;
- delays or difficulties in enrolling patients in our clinical trials;
- delays or difficulties in clinical site initiation, including difficulties in recruiting clinical site investigators and clinical site staff;
- delays in clinical sites receiving the supplies and materials needed to conduct our clinical trials, including interruption in global shipping that may affect the transport of clinical trial materials;
- changes in local regulations as part of a response to the COVID-19 outbreak which may require us to change the ways in which our clinical trials are conducted, which may result in unexpected costs, or to discontinue the clinical trials altogether;
- diversion of healthcare resources away from the conduct of clinical trials, including the diversion of hospitals serving as our clinical trial sites and hospital staff supporting the conduct of our clinical trials;
- interruption of key clinical trial activities, such as clinical trial site monitoring, due to limitations on travel imposed or recommended by federal or state governments, employers and others, or interruption of clinical trial subject visits and study procedures, the occurrence of which could affect the integrity of clinical trial data;
- interruption or delays in the operations of the FDA or other regulatory authorities, which may impact review and approval timelines;
- risk that participants enrolled in our clinical trials will acquire COVID-19 while the clinical trial is ongoing, which could impact the results of the clinical trial, including by increasing the number of observed adverse events; and
- refusal of the FDA to accept data from clinical trials in affected geographies.

These and other disruptions in our operations and the global economy could negatively impact our business, operating results and financial condition.

Our clinical trials have been, and may in the future be, affected by the COVID-19 pandemic. For example, some of our clinical trial sites have started to slow down or stop further enrollment of new patients in clinical trials, denied access to site monitors and otherwise curtailed certain operations. Similarly, our ability to recruit and retain principal investigators and site staff who, as healthcare providers, may have heightened exposure to COVID-19, may be adversely impacted. Our ongoing or planned clinical trials may also be impacted by interruptions or delays in the operations of the FDA and comparable foreign regulatory agencies. We and our CROs have also made certain adjustments to the operation of our trials in an effort to ensure the monitoring and safety of patients and minimize risks to trial integrity during the pandemic in accordance with the guidance issued by the FDA on March 18, 2020 and updated on April 2, 2020, and may need to make further adjustments in the future. Many of these adjustments are new and untested, may not be effective, and may have unforeseen effects on the enrollment, progress and completion of these trials and the findings from these trials. These events could delay our clinical trials, increase the cost of completing our clinical trials and negatively impact the integrity, reliability or robustness of the data from our clinical trials.

In addition, quarantines, shelter-in-place and similar government orders, or the perception that such orders, shutdowns or other restrictions on the conduct of business operations could occur, related to COVID-19 or other infectious diseases could impact personnel at third-party manufacturing facilities upon which we rely, or the availability or cost of materials, which could disrupt the supply chain for our product candidates. To the extent our suppliers and service providers are unable to comply with their obligations under our agreements with them or they are otherwise unable to deliver or are delayed in delivering goods and services to us due to the COVID-19 pandemic, our ability to continue meeting clinical supply demand for our product candidates or otherwise advancing development of our product candidates may become impaired.

Furthermore, we are constructing a pilot manufacturing facility which we expect to be completed by the end of 2020. However, quarantines, shelter-in-place and similar government orders related to COVID-19 or other infectious diseases could cause construction, validation and qualification of this facility to be delayed indefinitely and even significantly. In addition, even if the pilot manufacturing facility is operational by the end of 2020, such government orders could prevent us from operating the facility as intended. These events could delay our ability to manufacture clinical-scale materials for certain of our product candidates and otherwise delay the development of certain of our product candidates.

The spread of COVID-19 and actions taken to reduce its spread may also materially affect us economically. While the potential economic impact brought by, and the duration of, the COVID-19 pandemic may be difficult to assess or predict, there could be a significant disruption of global financial markets, reducing our ability to access capital, which could in the future negatively affect our liquidity and financial position. In addition, the trading prices for other biopharmaceutical companies have been highly volatile as a result of the COVID-19 pandemic. As a result, we may face difficulties raising capital through sales of our common stock or such sales may be on unfavorable terms.

COVID-19 and actions taken to reduce its spread continue to rapidly evolve. The extent to which COVID-19 may impede the development of our product candidates, reduce the productivity of our employees, disrupt our supply chains, delay our clinical trials, reduce our access to capital or limit our business development activities, will depend on future developments, which are highly uncertain and cannot be predicted with confidence. To the extent the COVID-19 pandemic adversely affects our business and financial results, it may also have the effect of heightening many of the other risks described in this “Risk Factors” section, such as those relating to the timing and results of our clinical trials and our financing needs.

Our employees, principal investigators, consultants and commercial partners may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements and insider trading.

We are exposed to the risk of fraud or other misconduct by our employees, principal investigators, consultants and commercial partners. Misconduct by these parties could include intentional failures to comply

with the regulations of the FDA and non-U.S. regulators, provide accurate information to the FDA and non-U.S. regulators, comply with healthcare fraud and abuse laws and regulations in the United States and abroad, report financial information or data accurately or disclose unauthorized activities to us. In particular, sales, marketing and business arrangements in the healthcare industry are subject to extensive laws and regulations intended to prevent fraud, misconduct, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, sales commission, customer incentive programs and other business arrangements. Such misconduct could also involve the improper use of information obtained in the course of clinical trials, which could result in regulatory sanctions and cause serious harm to our reputation. It is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to comply with these laws or regulations. If any such actions are instituted against us those actions could have a significant impact on our business, including the imposition of significant civil, criminal and administrative penalties, damages, fines, disgorgement, imprisonment, exclusion from government funded healthcare programs, such as Medicare and Medicaid, contractual damages, reputational harm, diminished profits and future earnings, additional reporting obligations and oversight if subject to a corporate integrity agreement or other agreement to resolve allegations of non-compliance with these laws, and the curtailment or restructuring of our operations.

We face potential product liability, and, if successful claims are brought against us, we may incur substantial liability and costs. If the use of our product candidates harms patients or is perceived to harm patients even when such harm is unrelated to our product candidates, our regulatory approvals could be revoked or otherwise negatively impacted and we could be subject to costly and damaging product liability claims.

The use of our product candidates in clinical trials and the sale of any products for which we obtain marketing approval exposes us to the risk of product liability claims. Product liability claims might be brought against us by consumers, healthcare providers, pharmaceutical companies or others selling or otherwise coming into contact with our products. There is a risk that our product candidates may induce adverse events. If we cannot successfully defend against product liability claims, we could incur substantial liability and costs. In addition, regardless of merit or eventual outcome, product liability claims may result in:

- impairment of our business reputation;
- withdrawal of clinical trial participants;
- costs due to related litigation;
- distraction of management’s attention from our primary business;
- substantial monetary awards to patients or other claimants;
- the inability to commercialize our product candidates; and
- decreased demand for our product candidates, if approved for commercial sale.

We carry product liability insurance of $5.0 million per occurrence and $5.0 million aggregate limit. We believe our product liability insurance coverage is sufficient in light of our current clinical programs; however, we may not be able to maintain insurance coverage at a reasonable cost or in sufficient amounts to protect us against losses due to liability. If and when we obtain marketing approval for product candidates, we intend to expand our insurance coverage to include the sale of commercial products; however, we may be unable to obtain product liability insurance on commercially reasonable terms or in adequate amounts. On occasion, large judgments have been awarded in class action lawsuits based on drugs or medical treatments that had unanticipated adverse effects. A successful product liability claims, or series of claims brought against us could cause our stock price to decline and, if judgments exceed our insurance coverage, could adversely affect our results of operations and business.

Patients with cancer and other diseases targeted by our product candidates are often already in severe and advanced stages of disease and have both known and unknown significant pre-existing and potentially life-threatening health risks. During the course of treatment, patients may suffer adverse events, including death, for reasons that may be related to our product candidates. Such events could subject us to costly litigation, require us to pay substantial amounts of money to injured patients, delay, negatively impact or end our opportunity to receive or maintain regulatory approval to market our products, or require us to suspend or abandon our commercialization efforts. Even in a circumstance in which we do not believe that an adverse event is related to our products, the investigation into the circumstance may be time-consuming or inconclusive. These investigations may interrupt our sales efforts, delay our regulatory approval process in other countries, or impact and limit the type of regulatory approvals our product candidates receive or maintain. As a result of these factors, a product liability claim, even if successfully defended, could have a material adverse effect on our business, financial condition or results of operations.

We will incur significantly increased costs as a result of operating as a public company, and our management will be required to devote substantial time to new compliance initiatives.

As a public company, we will incur significant legal, accounting and other expenses that we did not incur as a private company. In addition, the Sarbanes-Oxley Act, as well as rules subsequently implemented by the Securities and Exchange Commission, or SEC, and the Nasdaq Global Select Market have imposed various requirements on public companies. In July 2010, the Dodd-Frank Wall Street Reform and Consumer Protection Act, or the Dodd-Frank Act, was enacted. There are significant corporate governance and executive compensation related provisions in the Dodd-Frank Act that require the SEC to adopt additional rules and regulations in these areas such as “say on pay” and proxy access. Recent legislation permits smaller “emerging growth companies” to implement many of these requirements over a longer period and up to five years from the pricing of this offering. We intend to take advantage of this new legislation but cannot guarantee that we will not be required to implement these requirements sooner than budgeted or planned and thereby incur unexpected expenses. Stockholder activism, the current political environment and the current high level of government intervention and regulatory reform may lead to substantial new regulations and disclosure obligations, which may lead to additional compliance costs and impact the manner in which we operate our business in ways we cannot currently anticipate. Our management and other personnel will need to devote a substantial amount of time to these compliance initiatives. Moreover, these rules and regulations will increase our legal and financial compliance costs and will make some activities more time-consuming and costlier. For example, we expect these rules and regulations to make it more difficult and more expensive for us to obtain director and officer liability insurance and we may be required to incur substantial costs to maintain our current levels of such coverage. We estimate that we will annually incur approximately $2.0 million to $3.0 million in additional expenses to comply with the requirements imposed on us as a public company.

We are highly dependent on our key personnel, and if we are not successful in attracting and retaining highly qualified personnel, we may not be able to successfully implement our business strategy.

Our ability to compete in the highly competitive biotechnology and pharmaceutical industries depends upon our ability to attract and retain highly qualified managerial, scientific and medical personnel. We are highly dependent on our management, scientific and medical personnel. The loss of the services of any of our executive officers, other key employees, and other scientific and medical advisors, and our inability to find suitable replacements could result in delays in product development and harm our business.

We conduct substantially all of our operations at our facilities in San Diego. This region is headquarters to many other biopharmaceutical companies and many academic and research institutions. Competition for skilled personnel in our market is intense and may limit our ability to hire and retain highly qualified personnel on acceptable terms or at all.

To induce valuable employees to remain at our company, in addition to salary and cash incentives, we have provided stock options that vest over time. The value to employees of stock options that vest over time may

be significantly affected by movements in our stock price that are beyond our control and may at any time be insufficient to counteract more lucrative offers from other companies. Despite our efforts to retain valuable employees, members of our management, scientific and development teams may terminate their employment with us on short notice. Although we have employment agreements with certain of our key employees, these employment agreements provide for at-will employment, which means that any of our employees could leave our employment at any time, with or without notice. Other than for our President and Chief Executive Officer, we do not maintain "key person" insurance policies on the lives of these individuals or the lives of any of our other employees. Our success also depends on our ability to continue to attract, retain and motivate highly skilled junior, mid-level and senior managers as well as junior, mid-level and senior scientific and medical personnel.

We expect to expand our development, regulatory and operational capabilities and, as a result, we may encounter difficulties in managing our growth, which could disrupt our operations.

As of March 31, 2020, we had 149 employees. As we advance our research and development programs, we may be required to further increase the number of our employees and the scope of our operations, particularly in the areas of clinical development, quality, regulatory affairs and, if any of our product candidates receives marketing approval, sales, marketing and distribution. To manage any future growth, we must:

- identify, recruit integrate, maintain and motivate additional qualified personnel;
- manage our development efforts effectively, including the initiation and conduct of clinical trials for our product candidates, both as monotherapy and in combination with other intra-portfolio product candidates; and
- improve our operational, financial and management controls, reporting systems and procedures.

Our future financial performance and our ability to develop, manufacture and commercialize our product candidates will depend, in part, on our ability to effectively manage any future growth, and our management may also have to divert financial and other resources, and a disproportionate amount of its attention away from day-to-day activities in order to devote a substantial amount of time, to managing these growth activities.

If we are not able to effectively expand our organization by hiring new employees and expanding our groups of consultants and contractors, we may not be able to successfully implement the tasks necessary to further develop and commercialize our product candidates and, accordingly, may not achieve our research, development and commercialization goals.

We face substantial competition, which may result in others discovering, developing or commercializing products more quickly or marketing them more successfully than us.

The development and commercialization of new products is highly competitive. We compete in the segments of the pharmaceutical, biotechnology and other related markets that develop immunotherapies for the treatment of cancer. Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, have fewer or less severe side effects, are more convenient, or are less expensive than any products that we may develop or that would render any products that we may develop obsolete or non-competitive. Our competitors also may obtain marketing approval for their products more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market. Moreover, with the proliferation of new drugs and therapies into oncology, we expect to face increasingly intense competition as new technologies become available. If we fail to stay at the forefront of technological change, we may be unable to compete effectively. Any product candidates that we successfully develop and commercialize will compete with existing therapies and new therapies that may become available in the future. The highly competitive nature of and rapid technological changes in the biotechnology and pharmaceutical industries could render our product candidates or our technology obsolete, less competitive or uneconomical.

Other products in the same class as some of our product candidates have already been approved or are further along in development. As more product candidates within a particular class of biopharmaceutical products proceed through clinical development to regulatory review and approval, the amount and type of clinical data that may be required by regulatory authorities may increase or change. Consequently, the results of our clinical trials for product candidates in those class will likely need to show a risk benefit profile that is competitive with or more favorable than those products and product candidates in order to obtain marketing approval or, if approved, a product label that is favorable for commercialization. If the risk benefit profile is not competitive with those products or product candidates, we may have developed a product that is not commercially viable, that we are not able to sell profitably or that is unable to achieve favorable pricing or reimbursement. In such circumstances, our future product revenue and financial condition would be materially and adversely affected.

Specifically, there are many companies pursuing a variety of approaches to CAR-T therapies, including Adaptimmune Therapeutics plc, Allogene, Inc., Astellas Pharma, Inc., Autolus Ltd., Bellicum Pharmaceuticals Inc., Bluebird Bio, Inc., Cellectis S.A., Janssen Pharmaceuticals Inc., Juno Therapeutics, Inc. (acquired by Celgene Corporation), Kite Pharma, Inc. (a Gilead Sciences, Inc. company), Nanjing Legend Biotech, Novartis AG and Takeda Inc. Immunotherapy and gene therapy approaches are further being pursued by many smaller biotechnology companies as well as larger pharmaceutical companies. We also face competition from non-cell-based or other gene therapy treatments offered by companies such as Amgen Inc., AstraZeneca plc, Bristol-Myers Squibb Company, F. Hoffman-La Roche AG, GlaxoSmithKline plc, Merck & Co., Inc. and Pfizer Inc. Many of our competitors, either alone or with their collaboration partners, have substantially greater financial, technical and other resources, such as larger research and development staff and/or greater expertise in research and development, manufacturing, preclinical testing and conducting clinical trials.

Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller and other early stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These third parties compete with us in recruiting and retaining qualified scientific and management personnel, establishing clinical trial sites and subject enrollment for clinical trials, as well as in acquiring technologies complementary to, or necessary for, our programs.

The key competitive factors affecting the success of all of our programs are likely to be their efficacy, safety, convenience, and availability of reimbursement. If we are not successful in developing, commercializing and achieving higher levels of reimbursement than our competitors, we will not be able to compete against them and our business would be materially harmed.

Our internal information technology systems, or those of our third-party CROs or other contractors or consultants, may fail or suffer security breaches, loss or leakage of data, and other disruptions, which could result in a material disruption of our product candidates' development programs, compromise sensitive information related to our business or prevent us from accessing critical information, potentially exposing us to liability or otherwise adversely affecting our business.

We are increasingly dependent upon information technology systems, infrastructure and data to operate our business. In the ordinary course of business, we collect, store and transmit confidential information (including but not limited to intellectual property, proprietary business information and personal information). It is critical that we do so in a secure manner to maintain the confidentiality and integrity of such confidential information. We also have outsourced elements of our operations to third parties, and as a result we manage a number of third-party contractors who have access to our confidential information.

Despite the implementation of security measures, given their size and complexity and the increasing amounts of confidential information that they maintain, our internal information technology systems and those of our third-party CROs and other contractors and consultants are potentially vulnerable to breakdown or other

damage or interruption from service interruptions, system malfunction, natural disasters, terrorism, war and telecommunication and electrical failures, as well as security breaches from inadvertent or intentional actions by our employees, contractors, consultants, business partners, and/or other third parties, or from cyber-attacks by malicious third parties (including the deployment of harmful malware, ransomware, denial-of-service attacks, social engineering and other means to affect service reliability and threaten the confidentiality, integrity and availability of information), which may compromise our system infrastructure or lead to data leakage. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability and reputational damage and the further development and commercialization of our product candidates could be delayed.

While we have not experienced any such system failure, accident or security breach to date, we cannot assure you that our data protection efforts and our investment in information technology will prevent significant breakdowns, data leakages, breaches in our systems or other cyber incidents that could have a material adverse effect upon our reputation, business, operations or financial condition. For example, if such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our programs and the development of our product candidates could be delayed. In addition, the loss of clinical trial data for our product candidates could result in delays in our marketing approval efforts and significantly increase our costs to recover or reproduce the data. Furthermore, significant disruptions of our internal information technology systems or security breaches could result in the loss, misappropriation, and/or unauthorized access, use, or disclosure of, or the prevention of access to, confidential information (including trade secrets or other intellectual property, proprietary business information, and personal information), which could result in financial, legal, business, and reputational harm to us. For example, any such event that leads to unauthorized access, use, or disclosure of personal information, including personal information regarding our clinical trial subjects or employees, could harm our reputation directly, compel us to comply with federal and/or state breach notification laws and foreign law equivalents, subject us to mandatory corrective action, and otherwise subject us to liability under laws and regulations that protect the privacy and security of personal information, which could result in significant legal and financial exposure and reputational damages that could potentially have an adverse effect on our business.

We or the third parties upon whom we depend may be adversely affected by earthquakes, fires or other natural disasters and our business continuity and disaster recovery plans may not adequately protect us from a serious disaster.

Our headquarters and main research facility are located in San Diego, California, which in the past has experienced severe earthquakes and fires. If these earthquakes, fires, other natural disasters, terrorism and similar unforeseen events beyond our control prevented us from using all or a significant portion of our headquarters or research facility, it may be difficult or, in certain cases, impossible for us to continue our business for a substantial period of time. We do not have a disaster recovery or business continuity plan in place and may incur substantial expenses as a result of the absence or limited nature of our internal or third-party service provider disaster recovery and business continuity plans, which, particularly when taken together with our lack of earthquake insurance, could have a material adverse effect on our business. Furthermore, integral parties in our supply chain are operating from single sites, increasing their vulnerability to natural disasters or other sudden, unforeseen and severe adverse events. If such an event were to affect our supply chain, it could have a material adverse effect on our ability to conduct our clinical trials, our development plans and business.

Our ability to use our net operating loss carryforwards and certain other tax attributes may be limited.

We have incurred substantial losses during our history and do not expect to become profitable in the near future, and we may never achieve profitability. Unused U.S. federal net operating losses, or NOLs, for taxable years beginning before January 1, 2018, may be carried forward to offset future taxable income, if any, until such unused NOLs expire. Under legislation enacted in 2017, informally titled the Tax Cuts and Jobs Act, or the Tax Act, as modified by legislation enacted on March 27, 2020, entitled the Coronavirus Aid, Relief, and Economic Security Act, or the CARES Act, U.S. federal NOLs incurred in taxable years beginning after

December 31, 2017, can be carried forward indefinitely, but the deductibility of such U.S. federal NOLs in taxable years beginning after December 31, 2020, is limited to 80% of taxable income. It is uncertain if and to what extent various states will conform to the Tax Act or the CARES Act.

As of December 31, 2019, we had $23.3 million of U.S. federal NOLs that will begin to expire in 2032, and $94.6 million of U.S. federal NOLs that can be carried forward indefinitely under current law. As of December 31, 2019, we also had aggregate U.S. federal research and development, or R&D, credits of approximately $7.9 million. Our NOL carryforwards and R&D credits are subject to review and possible adjustment by the U.S. and state tax authorities.

In addition, under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, or the Code, and corresponding provisions of state law, if a corporation undergoes an "ownership change," which is generally defined as a greater than 50 percentage point change (by value) in its equity ownership over a three-year period, the corporation's ability to use its pre-change NOL carryforwards, R&D credits and certain other tax attributes to offset its post-change income or taxes may be limited. This could limit the amount of NOLs, R&D credit carryforwards or other applicable tax attributes that we can utilize annually to offset future taxable income or tax liabilities. Subsequent ownership changes and changes to the U.S. tax rules in respect of the utilization of NOLs, R&D credits and other applicable tax attributes carried forward may further affect the limitation in future years. In addition, at the state level, there may be periods during which the use of NOLs is suspended or otherwise limited, which could accelerate or permanently increase state taxes owed.

Changes in tax laws or regulations that are applied adversely to us or our customers may have a material adverse effect on our business, cash flow, financial condition or results of operations.

New income, sales, use or other tax laws, statutes, rules, regulations or ordinances could be enacted at any time, which could adversely affect our business operations and financial performance. Further, existing tax laws, statutes, rules, regulations or ordinances could be interpreted, changed, modified or applied adversely to us. For example, the Tax Act enacted many significant changes to the U.S. tax laws. Future guidance from the Internal Revenue Service and other tax authorities with respect to the Tax Act may affect us, and certain aspects of the Tax Act could be repealed or modified in future legislation. For example, the CARES Act modified certain provisions of the Tax Act. In addition, it is uncertain if and to what extent various states will conform to the Tax Act or any newly enacted federal tax legislation. Changes in corporate tax rates, the realization of net deferred tax assets relating to our operations, the taxation of foreign earnings, and the deductibility of expenses under the Tax Act or future reform legislation could have a material impact on the value of our deferred tax assets, could result in significant one-time charges, and could increase our future U.S. tax expense.

Failure to comply with health and data protection laws and regulations could lead to government enforcement actions (which could include civil or criminal penalties), private litigation, and/or adverse publicity and could negatively affect our operating results and business.

We and any potential collaborators may be subject to federal, state, and foreign data protection laws and regulations (i.e., laws and regulations that address privacy and data security). In the United States, numerous federal and state laws and regulations, including federal health information privacy laws, state data breach notification laws, state health information privacy laws, and federal and state consumer protection laws (e.g., Section 5 of the Federal Trade Commission Act), that govern the collection, use, disclosure, and protection of health-related and other personal information could apply to our operations or the operations of our collaborators. In addition, we may obtain health information from third parties (including research institutions from which we obtain clinical trial data) that are subject to privacy and security requirements under federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009, or HITECH. Depending on the facts and circumstances, we could be subject to criminal penalties if we knowingly obtain, use, or disclose individually identifiable health information maintained by a HIPAA-covered entity in a manner that is not authorized or permitted by HIPAA.

Internationally, virtually every jurisdiction in which we operate has established its own data security and privacy legal framework that may also apply to health-related and other personal information obtained outside of the United States, including but not limited to the European Union, or EU. The unstable nature of EU's data protection landscape may result in possible significant operational costs for internal compliance and risk to our business. While we could take steps to mitigate the impact on us, such as implementing standard contractual clauses and self-certifying under the EU-US Privacy Shield, the efficacy and longevity of these mechanisms remains uncertain. In addition, the EU has adopted the General Data Protection Regulation, or GDPR, which went into effect on May 25, 2018 and contains numerous requirements and changes from existing EU law, including more robust obligations on data controllers and data processors, and heavier documentation requirements for data protection compliance programs by companies. Specifically, the GDPR contains numerous privacy-related changes for companies operating in the EU, including greater control for data subjects (e.g., the "right to be forgotten"), increased data portability for EU consumers, data breach notification requirements, and increased fines. In particular, under the GDPR, fines of up to 20 million euros or up to 4% of the annual global revenue of the noncompliant company, whichever is greater, could be imposed for violations of certain of the GDPR's requirements. The GDPR requirements would apply not only to third-party transactions, but also to transfers of information between us and our subsidiaries, including employee information.

Compliance with the GDPR may cause us to incur substantial operational costs or require us to change our business practices. Despite our efforts to bring practices into compliance before the effective date of the GDPR, we may not be successful either due to internal or external factors such as resource allocation limitations or a lack of vendor cooperation. Non-compliance could result in proceedings against us by governmental entities, customers, data subjects, or others. We may also experience difficulty retaining or obtaining new European or multi-national customers due to the legal requirements, compliance cost, potential risk exposure, and uncertainty for these entities, and we may experience significantly increased liability with respect to these customers pursuant to the terms set forth in our engagements with them. We may find it necessary to establish systems to maintain personal data originating from the EU in the European Economic Area, which may involve substantial expense and distraction from other aspects of our business. In the meantime, there could be uncertainty as to how to comply with EU privacy law. Separately, the United Kingdom's withdrawal from the EU could also lead to further legislative and regulatory changes and increase our compliance costs. In particular, the United Kingdom has transposed the GDPR into domestic law with a UK version of the GDPR taking effect from January 2021 (after the end of the transitional period) which could expose us to two parallel regimes each with the power to fine up to the greater of either 4% of global revenue, or Euro 20,000,000 (for the EU) or £17,500,000 (for the UK).

Failure to comply with U.S. and international data protection laws and regulations could result in government enforcement actions (which could include civil or criminal penalties), private litigation, breach reporting requirements and/or adverse publicity and could negatively affect our operating results and business. Moreover, clinical trial subjects about whom we or our potential collaborators obtain information, as well as the providers who share this information with us, may contractually limit our ability to use and disclose the information. Claims that we have violated individuals' privacy rights, failed to comply with data protection laws, or breached our contractual obligations, even if we are not found liable, could be expensive and time-consuming to defend and could result in adverse publicity that could harm our business.

Changes in healthcare law and implementing regulations, as well as changes in healthcare policy, may impact our business in ways that we cannot currently predict, and may have a significant adverse effect on our business and results of operations.

In the United States and some foreign jurisdictions, there have been, and continue to be, several legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay marketing approval of product candidates, restrict or regulate post-approval activities, and affect our ability to profitably sell any product candidates for which we obtain marketing approval. Among policy makers and payors in the United States and elsewhere, including in the EU, there is significant interest in promoting changes

in healthcare systems with the stated goals of containing healthcare costs, improving quality and/or expanding access. In the United States, the pharmaceutical industry has been a particular focus of these efforts and has been significantly affected by major legislative initiatives.

The Affordable Care Act, substantially changed the way healthcare is financed by both the government and private insurers, and significantly impacts the U.S. pharmaceutical industry. The Affordable Care Act, among other things: (1) introduced a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for certain drugs and biologics that are inhaled, infused, instilled, implanted or injected and not generally dispensed through retail community pharmacies; (2) increased the minimum Medicaid rebates owed by manufacturers under the Medicaid Drug Rebate Program; (3) established a branded prescription drug fee that pharmaceutical manufacturers of branded prescription drugs must pay to the federal government; (4) expanded the list of covered entities eligible to participate in the 340B drug pricing program by adding new entities to the program; (5) established a new Medicare Part D coverage gap discount program, in which manufacturers must now agree to offer 70% point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturer's outpatient drugs to be covered under Medicare Part D; (6) extended manufacturers' Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations; (7) expanded eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals and by adding new mandatory eligibility categories for individuals with income at or below 133% of the federal poverty level, thereby potentially increasing manufacturers' Medicaid rebate liability; (8) created a licensure framework for follow on biologic products; (9) established a Center for Medicare Innovation at the Centers for Medicare & Medicaid Services, or CMS, to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug spending; and (10) created a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research.

There remain judicial and Congressional challenges to certain aspects of the Affordable Care Act, as well as efforts by the Trump administration to repeal or replace and replace certain aspects of the Affordable Care Act. While Congress has not passed comprehensive repeal legislation, the Tax Act includes a provision repealing, effective January 1, 2019, the tax-based shared responsibility payment imposed by the Affordable Care Act on certain individuals who fail to maintain qualifying health coverage for all or part of a year that is commonly referred to as the "individual mandate." Additionally, the 2020 federal spending package permanently eliminated, effective January 1, 2020, the Affordable Care Act's mandated "Cadillac" tax on high-cost employer-sponsored health coverage and medical device tax and, effective January 1, 2021, also eliminates the health insurer tax. Further, the Bipartisan Budget Act of 2018, or the BBA, among other things, amends the Affordable Care Act, effective January 1, 2019, to close the coverage gap in most Medicare drug plans, commonly referred to as the "donut hole". Additionally, in December 2018, CMS published a new final rule permitting further collections and payments to and from certain Affordable Care Act qualified health plans and health insurance issuers under the Affordable Care Act risk adjustment program in response to the outcome of federal district court litigation regarding the method CMS uses to determine this risk adjustment. On December 14, 2018, a Texas U.S. District Court Judge ruled that the Affordable Care Act is unconstitutional in its entirety because the "individual mandate" was repealed by Congress as part of the Tax Act. On December 18, 2019, the U.S. Court of Appeals for the 5th Circuit upheld the District Court ruling that the individual mandate was unconstitutional and remanded the case back to the District Court to determine whether the remaining provisions of the Affordable Care Act are invalid as well. On March 2, 2020, the United States Supreme Court granted the petitions for writs of certiorari to review this case, although it is unclear when a decision will be made or how the Supreme Court will rule. There may also be other efforts to challenge, repeal or replace the Affordable Care Act. We continue to evaluate the effect that the Affordable Care Act and its possible repeal and replacement has on our business. It is uncertain the extent to which any such changes may impact our business or financial condition.

Other legislative changes have been proposed and adopted since the Affordable Care Act was enacted. These changes include aggregate reductions to Medicare payments to providers of 2% per fiscal year pursuant to

the Budget Control Act of 2011, which began in 2013 and, due to legislative amendments to the statute, including the BBA and the CARES Act, will remain in effect through 2030 unless additional Congressional action is taken. These reductions will be suspended from May 1, 2020 through December 31, 2020 due to the COVID-19 pandemic. In January 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, reduced Medicare payments to several providers, including hospitals, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. Additional changes that may affect our business include the expansion of new programs such as Medicare payment for performance initiatives for physicians, also referred to as the Quality Payment Program, under the Medicare Access and CHIP Reauthorization Act of 2015. In November 2019, CMS issued a final rule finalizing the changes to the Quality Payment Program. At this time, it is unclear how the introduction of the Quality Payment Program will impact overall physician reimbursement under the Medicare Program. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors. In addition, new laws may result in additional reductions in Medicare and other healthcare funding, which may materially adversely affect customer demand and affordability for our products and, accordingly, the results of our financial operations.

Also, there has been heightened governmental scrutiny recently over the manner in which drug manufacturers set prices for their marketed products, which have resulted in several Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to product pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drug products. At the federal level, the Trump administration's budget proposal for fiscal year 2021 includes a $135 billion allowance to support legislative proposals seeking to reduce drug prices, increase competition, lower out-of-pocket drug costs for patients, and increase patient access to lower-cost generic and biosimilar drugs. On March 10, 2020, the Trump administration sent "principles" for drug pricing to Congress, calling for legislation that would, among other things, cap Medicare Part D beneficiary out-of-pocket pharmacy expenses, provide an option to cap Medicare Part D beneficiary monthly out-of-pocket expenses, and place limits on pharmaceutical price increases. Additionally, the Trump administration previously released a "Blueprint" to lower drug prices and reduce out of pocket costs of drugs that contained proposals to increase manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products and reduce the out of pocket costs of drug products paid by consumers. The U.S. Department of Health and Human Services, or HHS, has solicited feedback on some of these measures and has implemented others under its existing authority. For example, in May 2019, CMS issued a final rule to allow Medicare Advantage plans the option to use step therapy for Part B drugs beginning January 1, 2020. This final rule codified CMS's policy change that was effective January 1, 2019. Although a number of these and other measures may require additional authorization to become effective, Congress and the Trump administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. At the state level, legislatures have increasingly passed legislation and implemented regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures. For example, California requires pharmaceutical manufacturers to notify certain purchasers, including health insurers and government health plans at least 60 days before any scheduled increase in the wholesale acquisition cost, or WAC, of their product if the increase exceeds 16%, and further requires pharmaceutical manufacturers to explain whether a change or improvement in the product necessitates such an increase. Similarly, Vermont requires pharmaceutical manufacturers to disclose price information on certain prescription drugs, and to provide notification to the state if introducing a new drug with a WAC in excess of the Medicare Part D specialty drug threshold.

We expect that these and other healthcare reform measures that may be adopted in the future may result in more rigorous coverage criteria and lower reimbursement and in additional downward pressure on the price that we receive for any approved product. Any reduction in reimbursement from Medicare or other government-funded programs may result in a similar reduction in payments from private payors. The implementation of cost-

containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability or commercialize our drugs, once marketing approval is obtained.

In the European Union, coverage and reimbursement status of any product candidates for which we obtain regulatory approval are provided for by the national laws of EU Member States. The requirements may differ across the EU Member States. Also, at national level, actions have been taken to enact transparency laws regarding payments between pharmaceutical companies and health care professionals.

We are subject to applicable fraud and abuse, transparency, government price reporting, and other healthcare laws and regulations. If we are unable to comply, or have not fully complied, with such laws, we could face substantial penalties.

Healthcare providers, physicians and third-party payors will play a primary role in the recommendation and prescription of any future product candidates we may develop and any product candidates for which we obtain marketing approval. Our current and future arrangements with clinical investigators, third-party payors, healthcare provider and customers expose us to broadly applicable fraud and abuse and other healthcare laws and regulations that may affect the business or financial arrangements and relationships through which we research, market, sell and distribute our products. The laws that may affect our ability to operate include, but are not limited to:

- the federal Anti-Kickback Statute, which prohibits any person or entity from, among other things, knowingly and willfully soliciting, receiving, offering or paying any remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce or reward either the referral of an individual for, or the purchase, order or recommendation of an item or service reimbursable, in whole or in part, under a federal healthcare program, such as the Medicare and Medicaid programs. The term “remuneration” has been broadly interpreted to include anything of value. The federal Anti-Kickback Statute has also been interpreted to apply to arrangements between pharmaceutical manufacturers on the one hand and prescribers, and purchasers, on the other the other hand. There are a number of statutory exceptions and regulatory safe harbors protecting some common activities from prosecution, but these exceptions and safe harbors are narrowly drawn. Practices that are alleged to be intended to induce prescribing, purchases or recommendations, or include any payments of more than fair market value, may be subject to scrutiny if they do not qualify for an exception or safe harbor;

- federal civil and criminal false claims laws, such as the civil False Claims Act, or FCA, which can be enforced by private citizens through civil qui tam actions, and civil monetary penalty laws prohibits individuals or entities from, among other things, knowingly presenting, or causing to be presented, false, fictitious or fraudulent claims for payment of federal funds, and knowingly making, using or causing to be made or used a false record or statement material to a false or fraudulent claim to avoid, decrease or conceal an obligation to pay money to the federal government. For example, pharmaceutical companies have been prosecuted under the FCA in connection with, among other things their alleged off-label promotion of drugs, engaging in improper consulting arrangements with physicians, concealing price concessions in the pricing information submitted to the government for government price reporting purposes, and providing free product to customers with the expectation that the customers would bill federal health care programs for the product. In addition, a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the FCA. As a result of a modification made by the Fraud Enforcement and Recovery Act of 2009, a claim includes “any request or demand” for money or property presented to the U.S. government. In addition, manufacturers can be held liable under the FCA even when they do not submit claims directly to government payors if they are deemed to “cause” the submission of false or fraudulent claims;

- HIPAA which, among other things, imposes criminal liability for executing or attempting to execute a scheme to defraud any healthcare benefit program, including private third-party payors, knowingly and willfully embezzling or stealing from a healthcare benefit program, willfully obstructing a criminal investigation of a healthcare offense, and creates federal criminal laws that prohibit knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false, fictitious or fraudulent statement or representation, or making or using any false writing or document knowing the same to contain any materially false, fictitious or fraudulent statement or entry in connection with the delivery of or payment for healthcare benefits, items or services;

- HIPAA, as amended by HITECH and their implementing regulations, which imposes privacy, security and breach reporting obligations with respect to individually identifiable health information upon covered entities and their respective business associates. HITECH also created new tiers of civil monetary penalties, amended HIPAA to make civil and criminal penalties directly applicable to business associates, and gave state attorneys general new authority to file civil actions for damages or injunctions in U.S. federal courts to enforce the federal HIPAA laws and seek attorneys' fees and costs associated with pursuing federal civil actions;

- the federal transparency requirements under the Physician Payments Sunshine Act, created under the Affordable Care Act, which requires, among other things, certain manufacturers of drugs, devices, biologics and medical supplies reimbursed under Medicare, Medicaid, or the Children's Health Insurance Program to report to CMS information related to payments and other transfers of value provided to physicians, as defined by such law, and teaching hospitals and physician ownership and investment interests, including such ownership and investment interests held by a physician's immediate family members;

- state and foreign law equivalents of each of the above federal laws, such as anti-kickback and false claims laws, that may impose similar or more prohibitive restrictions, and may apply to items or services reimbursed by any non-governmental third-party payors, including private insurers; and

- state and foreign laws that require pharmaceutical companies to implement compliance programs, comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government, or to track and report gifts, compensation and other remuneration provided to physicians and other health care providers, state and local laws that require the registration of pharmaceutical sales representatives, and other federal, state and foreign laws that govern the privacy and security of health information or personally identifiable information in certain circumstances, including state health information privacy and data breach notification laws which govern the collection, use, disclosure, and protection of health-related and other personal information, many of which differ from each other in significant ways and often are not pre-empted by HIPAA, thus requiring additional compliance efforts.

We may also be subject to federal and state consumer protection and unfair competition laws, which broadly regulate marketplace activities and activities that potentially harm consumers. We have entered into consulting and scientific advisory board arrangements with physicians and other healthcare providers, some of which include provisions of stock options, including some who could influence the use of our product candidates, if approved. Because of the complex and far-reaching nature of these laws, regulatory agencies may view these transactions as prohibited arrangements that must be restructured, or discontinued, or for which we could be subject to other significant penalties. We could be adversely affected if regulatory agencies interpret our financial relationships with providers who may influence the ordering of and use our product candidates, if approved, to be in violation of applicable laws.

Federal and state enforcement bodies have continued their scrutiny of interactions between healthcare companies and healthcare providers, which has led to significant investigations, prosecutions, convictions and settlements in the healthcare industry. Responding to investigations can be time-and resource-consuming and can divert management's attention from the business. Any such investigation or settlement could increase our costs or otherwise have an adverse effect on our business.

Ensuring that our business arrangements with third parties comply with applicable healthcare laws and regulations will likely be costly. If our operations are found to be in violation of any of these laws or any other current or future governmental laws and regulations that may apply to us, we may be subject to significant civil, criminal and administrative penalties, damages, fines, disgorgement, imprisonment, exclusion from government funded healthcare programs, such as Medicare and Medicaid, contractual damages, reputational harm, diminished profits and future earnings, additional reporting obligations and oversight if we become subject to a corporate integrity agreement or other agreement to resolve allegations of non-compliance with these laws, and the curtailment or restructuring of our operations, any of which could substantially disrupt our operations. If any of the physicians or other healthcare providers or entities with whom we expect to do business is found to be not in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs.

We are subject to certain U.S. and foreign anti-corruption, anti-money laundering, export control, sanctions, and other trade laws and regulations. We can face serious consequences for violations.

U.S. and foreign anti-corruption, anti-money laundering, export control, sanctions, and other trade laws and regulations, or collectively, Trade Laws, prohibit, among other things, companies and their employees, agents, CROs, legal counsel, accountants, consultants, contractors, and other partners from authorizing, promising, offering, providing, soliciting, or receiving directly or indirectly, corrupt or improper payments or anything else of value to or from recipients in the public or private sector. Violations of Trade Laws can result in substantial criminal fines and civil penalties, imprisonment, the loss of trade privileges, debarment, tax reassessments, breach of contract and fraud litigation, reputational harm, and other consequences. We have direct or indirect interactions with officials and employees of government agencies or government-affiliated hospitals, universities, and other organizations. We also expect our non-U.S. activities to increase over time. We expect to rely on third parties for research, preclinical studies, and clinical trials and/or to obtain necessary permits, licenses, patent registrations, and other marketing approvals. We can be held liable for the corrupt or other illegal activities of our personnel, agents, or partners, even if we do not explicitly authorize or have prior knowledge of such activities.

If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have a material adverse effect on the success of our business.

We, and the third parties with whom we share our facilities, are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Each of our operations involve the use of hazardous and flammable materials, including chemicals and biological and radioactive materials. Each of our operations also produce hazardous waste products. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination or injury from these materials. We could be held liable for any resulting damages in the event of contamination or injury resulting from the use of hazardous materials by us or the third parties with whom we share our facilities, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties.

Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological, hazardous or radioactive materials.

In addition, we may incur substantial costs in order to comply with current or future environmental, health and safety laws and regulations. These current or future laws and regulations may impair our research and development. Failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions.

Unstable market and economic conditions may have serious adverse consequences on our business, financial condition and stock price.

As a result of the COVID-19 pandemic and actions taken to slow its spread, the global credit and financial markets have recently experienced extreme volatility and disruptions, including severely diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, increases in unemployment rates and uncertainty about economic stability. There can be no assurance that further deterioration in credit and financial markets and confidence in economic conditions will not occur. Our general business strategy may be adversely affected by any such economic downturn, volatile business environment or continued unpredictable and unstable market conditions. If the current equity and credit markets deteriorate, it may make any necessary debt or equity financing more difficult, more costly and more dilutive. Failure to secure any necessary financing in a timely manner and on favorable terms could have a material adverse effect on our growth strategy, financial performance and stock price and could require us to delay or abandon clinical development plans. In addition, there is a risk that one or more of our current service providers, manufacturers and other partners may not survive an economic downturn, which could directly affect our ability to attain our operating goals on schedule and on budget.

Risks Related to Our Intellectual Property

If we are unable to obtain and maintain sufficient intellectual property protection for our platform technologies and product candidates, or if the scope of the intellectual property protection is not sufficiently broad, our competitors could develop and commercialize products similar or identical to ours, and our ability to successfully commercialize our products may be adversely affected.

Our success depends in large part on our ability to obtain and maintain patent protection in the United States and other countries with respect to our platform technologies and product candidates. We seek to protect our proprietary position by filing patent applications in the United States and abroad related to our novel discoveries and technologies that are important to our business. Our pending and future patent applications may not result in patents being issued which protect our product candidates or their intended uses or which effectively prevent others from commercializing competitive technologies, products or product candidates.

Obtaining and enforcing patents is expensive and time-consuming, and we may not be able to file and prosecute all necessary or desirable patent applications or maintain and/or enforce patents that may issue based on our patent applications, at a reasonable cost or in a timely manner, including as a result of the COVID-19 pandemic impacting our or our licensors' operations. It is also possible that we will fail to identify patentable aspects of our research and development results before it is too late to obtain patent protection. Although we enter into non-disclosure and confidentiality agreements with parties who have access to patentable aspects of our research and development output, such as our employees, corporate collaborators, outside scientific collaborators, contract research organizations, contract manufacturers, consultants, advisors and other third parties, any of these parties may breach these agreements and disclose such results before a patent application is filed, thereby jeopardizing our ability to seek patent protection.

Composition of matter patents for biological and pharmaceutical products such as CAR-based product candidates often provide a strong form of intellectual property protection for those types of products, as such patents provide protection without regard to any method of use. We cannot be certain that the claims in our pending patent applications covering composition of matter of our product candidates will be considered patentable by the United States Patent and Trademark Office, or USPTO, or by patent offices in foreign

countries, or that the claims in any of our issued patents will be considered valid and enforceable by courts in the United States or foreign countries. Method of use patents protect the use of a product for the specified method. This type of patent does not prevent a competitor from making and marketing a product that is identical to our product for an indication that is outside the scope of the patented method. Moreover, even if competitors do not actively promote their product for our targeted indications, physicians may prescribe these products "off-label." Although off-label prescriptions may infringe or contribute to the infringement of method of use patents, the practice is common and such infringement is difficult to prevent or prosecute.

The patent position of biopharmaceutical companies generally is highly uncertain, involves complex legal and factual questions and has in recent years been the subject of much litigation, resulting in court decisions, including Supreme Court decisions, which have increased uncertainties as to the ability to enforce patent rights in the future. In addition, the laws of foreign countries may not protect our rights to the same extent as the laws of the United States, or vice versa.

Further, we may not be aware of all third-party intellectual property rights potentially relating to our product candidates or their intended uses, and as a result the impact of such third-party intellectual property rights upon the patentability of our own patents and patent applications, as well as the impact of such third-party intellectual property upon our freedom to operate, is highly uncertain. Patent applications in the United States and other jurisdictions are typically not published until 18 months after filing or, in some cases, not at all. Therefore, we cannot know with certainty whether we were the first to make the inventions claimed in our patents or pending patent applications, or that we were the first to file for patent protection of such inventions. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain. Our patents or pending patent applications may be challenged in the courts or patent offices in the United States and abroad. For example, we may be subject to a third-party pre-issuance submission of prior art to the USPTO or become involved in post-grant review procedures, oppositions, derivations, reexaminations, or *inter partes* review proceedings, in the United States or elsewhere, challenging our patent rights or the patent rights of others. An adverse determination in any such challenges may result in loss of exclusivity or in patent claims being narrowed, invalidated, or held unenforceable, in whole or in part, which could limit our ability to stop others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection of our technology and products. In addition, given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. Any failure to obtain or maintain patent protection with respect to our product candidates could have a material adverse effect on our business, financial condition, results of operations and prospects.

We may not identify relevant third-party patents or may incorrectly interpret the relevance, scope or expiration of a third-party patent, which might adversely affect our ability to develop and market our products.

We cannot guarantee that any of our patent searches or analyses, including the identification of relevant patents, the scope of patent claims or the expiration of relevant patents, are complete or thorough, nor can we be certain that we have identified each and every third-party patent and pending application in the United States and abroad that is relevant to or necessary for the commercialization of our product candidates in any jurisdiction.

The scope of a patent claim is determined by an interpretation of the law, the written disclosure in a patent and the patent's prosecution history. Our interpretation of the relevance or the scope of a patent or a pending application may be incorrect, which may negatively impact our ability to market our products. We may incorrectly determine that our products are not covered by a third-party patent or may incorrectly predict whether a third-party's pending application will issue with claims of relevant scope. Our determination of the expiration date of any patent in the United States or abroad that we consider relevant may be incorrect, which may negatively impact our ability to develop and market our product candidates. Our failure to identify and correctly interpret relevant patents may negatively impact our ability to develop and market our products.

If we fail to comply with our obligations in the agreements under which we license intellectual property rights from third parties or otherwise experience disruptions to our business relationships with our licensors, we could lose license rights that are important to our business.

We are a party to a number of intellectual property license agreements that are important to our business and expect to enter into additional license agreements in the future. Our existing license agreements impose, and we expect that future license agreements will impose, various diligence, milestone payment, royalty and other obligations on us. If we fail to comply with our obligations under these agreements, including due to the impact of the COVID-19 pandemic on our business operations, or we are subject to a bankruptcy, the licensor may have the right to terminate the license, in which event we would not be able to market products covered by the license.

We may need to obtain licenses from third parties to advance our research or allow commercialization of our product candidates, and we have done so from time to time. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all. In that event, we may be required to expend considerable time and resources to develop or license replacement technology. If we are unable to do so, we may be unable to develop or commercialize the affected product candidates, which could harm our business significantly. We cannot provide any assurances that third-party patents do not exist which might be enforced against our current product candidates or future products, resulting in either an injunction prohibiting our sales, or, with respect to our sales, an obligation on our part to pay royalties and/or other forms of compensation to third parties.

In many cases, patent prosecution of our licensed technology is controlled solely by the licensor. If our licensors fail to obtain and maintain patent or other protection for the proprietary intellectual property we license from them, including due to the impact of the COVID-19 pandemic on our licensors' business operations, we could lose our rights to the intellectual property or our exclusivity with respect to those rights, these patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business and our competitors could market competing products using the intellectual property. In certain cases, we control the prosecution of patents resulting from licensed technology. In the event we breach any of our obligations related to such prosecution, we may incur significant liability to our licensing partners. Licensing of intellectual property is of critical importance to our business and involves complex legal, business and scientific issues and is complicated by the rapid pace of scientific discovery in our industry. Disputes may arise regarding intellectual property subject to a licensing agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- the extent to which our technology and processes infringe on intellectual property of the licensor that is not subject to the licensing agreement;
- the sublicensing of patent and other rights under our collaborative development relationships;
- our diligence obligations under the license agreement and what activities satisfy those diligence obligations;
- the ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and us and our partners; and
- the priority of invention of patented technology.

If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected product candidates. We are generally also subject to all of the same risks with respect to protection of intellectual property that we license as we are for intellectual property that we own, which are described herein. If we or our licensor fail to adequately protect this intellectual property, our ability to commercialize products could suffer.

In the future, we may need to obtain additional licenses of third-party technology that may not be available to us or are available only on commercially unreasonable terms, and which may cause us to operate our business in a more costly or otherwise adverse manner that was not anticipated.

We currently have rights to intellectual property covering our product candidates and other proprietary technologies. Other pharmaceutical companies and academic institutions may also have filed or are planning to file patent applications potentially relevant to our business. From time to time, in order to avoid infringing these third-party patents, we may be required to license technology from additional third parties to further develop or commercialize our product candidates. Should we be required to obtain licenses to any third-party technology, including any such patents required to manufacture, use or sell our product candidates, such licenses may not be available to us on commercially reasonable terms, or at all. The inability to obtain any third-party license required to develop or commercialize any of our product candidates could cause us to abandon any related efforts, which could seriously harm our business and operations.

The licensing or acquisition of third-party intellectual property rights is a competitive area, and several more established companies may pursue strategies to license or acquire third-party intellectual property rights we may consider attractive or necessary. These established companies may have a competitive advantage over us due to their size, capital resources and greater clinical development and commercialization capabilities. In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us.

Moreover, some of our owned and in-licensed patents or patent applications or future patents are or may be co-owned with third parties. If we are unable to obtain an exclusive license to any such third-party co-owners' interest in such patents or patent applications, such co-owners may be able to license their rights to other third parties, including our competitors, and our competitors could market competing products and technology. In addition, we may need the cooperation of any such co-owners of our patents in order to enforce such patents against third parties, and such cooperation may not be provided to us. Furthermore, our owned and in-licensed patents may be subject to a reservation of rights by one or more third parties. Any of the foregoing could have a material adverse effect on our competitive position, business, financial conditions, results of operations and prospects.

We cannot ensure that patent rights relating to inventions described and claimed in our pending patent applications will issue or that patents based on our patent applications will not be challenged and rendered invalid and/or unenforceable.

We have pending U.S. and foreign patent applications in our portfolio; however, we cannot predict:

- if and when patents may issue based on our patent applications;
- the scope of protection of any patent issuing based on our patent applications;
- whether the claims of any patent issuing based on our patent applications will provide protection against competitors;
- whether or not third parties will find ways to invalidate or circumvent our patent rights;
- whether or not others will obtain patents claiming aspects similar to those covered by our patents and patent applications;
- whether we will need to initiate litigation or administrative proceedings to enforce and/or defend our patent rights which will be costly whether we win or lose; and/or
- whether the patent applications that we own, or in-license will result in issued patents with claims that cover our product candidates or uses thereof in the United States or in other foreign countries.

We cannot be certain that the claims in our pending patent applications directed to our product candidates and/or technologies will be considered patentable by the USPTO or by patent offices in foreign countries. There can be no assurance that any such patent applications will issue as granted patents. One aspect of the determination of patentability of our inventions depends on the scope and content of the "prior art," information that was or is deemed available to a person of skill in the relevant art prior to the priority date of the claimed invention. There may be prior art of which we are not aware that may affect the patentability of our patent claims or, if issued, affect the validity or enforceability of a patent claim. Even if the patents do issue based on our patent applications, third parties may challenge the validity, enforceability or scope thereof, which may result in such patents being narrowed, invalidated or held unenforceable. Furthermore, even if they are unchallenged, patents in our portfolio may not adequately exclude third parties from practicing relevant technology or prevent others from designing around our claims. If the breadth or strength of our intellectual property position with respect to our product candidates is threatened, it could dissuade companies from collaborating with us to develop and threaten our ability to commercialize our product candidates. In the event of litigation or administrative proceedings, we cannot be certain that the claims in any of our issued patents will be considered valid by courts in the United States or foreign countries.

Intellectual property rights do not necessarily address all potential threats to our competitive advantage.

The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations and may not adequately protect our business or permit us to maintain our competitive advantage. For example:

- others may be able to make product candidates that are similar to ours but that are not covered by the claims of the patents that we own or have exclusively licensed;
- we or our licensors or future collaborators might not have been the first to make the inventions covered by the issued patent or pending patent application that we own or have exclusively licensed;
- we or our licensors or future collaborators might not have been the first to file patent applications covering certain of our inventions;
- others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing our intellectual property rights;
- it is possible that our pending patent applications will not lead to issued patents;
- issued patents that we own or have exclusively licensed may be held invalid or unenforceable, as a result of legal challenges by our competitors;
- our competitors might conduct research and development activities in countries where we do not have patent rights and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- we may not develop additional proprietary technologies that are patentable;
- we cannot predict the scope of protection of any patent issuing based on our patent applications, including whether the patent applications that we own or in-license will result in issued patents with claims that cover our product candidates or uses thereof in the United States or in other foreign countries;
- the claims of any patent issuing based on our patent applications may not provide protection against competitors or any competitive advantages, or may be challenged by third parties;

- if enforced, a court may not hold that our patents are valid, enforceable and infringed;
- we may need to initiate litigation or administrative proceedings to enforce and/or defend our patent rights which will be costly whether we win or lose;
- we may choose not to file a patent in order to maintain certain trade secrets or know-how, and a third party may subsequently file a patent covering such intellectual property;
- we may fail to adequately protect and police our trademarks and trade secrets; and
- the patents of others may have an adverse effect on our business, including if others obtain patents claiming subject matter similar to or improving that covered by our patents and patent applications.

Should any of these events occur, they could significantly harm our business, results of operations and prospects.

If we are sued for infringing intellectual property rights of third parties, such litigation could be costly and time consuming and could prevent or delay us from developing or commercializing our product candidates.

Our commercial success depends, in part, on our ability to develop, manufacture, market and sell our product candidates without infringing the intellectual property and other proprietary rights of third parties. Third parties may allege that we have infringed or misappropriated their intellectual property. For example, in early 2019, we received a letter from a third party alleging that we have used materials received from the third party in an unauthorized manner and stating a belief that we will infringe certain patents relating to the use of a safety switch in our CAR-T products. While we have denied that we used any of the third party's materials in an unauthorized manner and believe that the patents will not be infringed, are invalid, or both, we cannot predict whether the third party will persist in its allegations or whether litigation will ensue. Litigation or other legal proceedings relating to intellectual property claims, with or without merit, is unpredictable and generally expensive and time consuming and, even if resolved in our favor, is likely to divert significant resources from our core business, including distracting our technical and management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the market price of our common stock. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing or distribution activities. We may not have sufficient financial or other resources to adequately conduct such litigation or proceedings. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources and more mature and developed intellectual property portfolios. Uncertainties resulting from the initiation and continuation of patent litigation or other proceedings could have a material adverse effect on our ability to compete in the marketplace.

There is a substantial amount of intellectual property litigation in the biotechnology and pharmaceutical industries, and we may become party to, or threatened with, litigation or other adversarial proceedings regarding intellectual property rights with respect to our products candidates. We cannot assure you that our product candidates and other proprietary technologies we may develop will not infringe existing or future patents owned by third parties. Third parties may assert infringement claims against us based on existing or future intellectual property rights. We may not be aware of patents that have already been issued and that a third party, for example, a competitor in the fields in which we are developing our product candidates, might assert are infringed by our current or future product candidates, including claims to compositions, formulations, methods of manufacture or methods of use or treatment that cover our product candidates. It is also possible that patents owned by third parties of which we are aware, but which we do not believe are relevant to our product candidates and other proprietary technologies we may develop, could be found to be infringed by our product candidate. In addition,

because patent applications can take many years to issue, there may be currently pending patent applications that may later result in issued patents that our product candidates may infringe. Our competitors in both the United States and abroad, many of which have substantially greater resources and have made substantial investments in patent portfolios and competing technologies, may have applied for or obtained or may in the future apply for and obtain, patents that will prevent, limit or otherwise interfere with our ability to make, use and sell our product candidates. The pharmaceutical and biotechnology industries have produced a considerable number of patents, and it may not always be clear to industry participants, including us, which patents cover various types of products or methods of use. The coverage of patents is subject to interpretation by the courts, and the interpretation is not always uniform. If we were sued for patent infringement, we would need to demonstrate that our product candidates, products or methods either do not infringe the patent claims of the relevant patent or that the patent claims are invalid or unenforceable, and we may not be able to do this. Proving invalidity may be difficult. For example, in the United States, proving invalidity in court requires a showing of clear and convincing evidence to overcome the presumption of validity enjoyed by issued patents, and there is no assurance that a court of competent jurisdiction would invalidate the claims of any such U.S. patent. Even if we are successful in these proceedings, we may incur substantial costs and the time and attention of our management and scientific personnel could be diverted in pursuing these proceedings, which could have a material adverse effect on our business and operations. In addition, we may not have sufficient resources to bring these actions to a successful conclusion.

If we are found to infringe a third-party's intellectual property rights, we could be forced, including by court order, to cease developing, manufacturing or commercializing the infringing product candidate or product. Alternatively, we may be required to obtain a license from such third-party in order to use the infringing technology and continue developing, manufacturing or marketing the infringing product candidate. However, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. In addition, we could be found liable for monetary damages, including treble damages and attorneys' fees if we are found to have willfully infringed a patent. A finding of infringement could prevent us from commercializing our product candidates or force us to cease some of our business operations, and could divert the time and attention of our technical personnel and management, cause development delays, and/or require us to develop non-infringing technology, which may not be possible on a cost-effective basis, any of which could materially harm our business. In the event of a successful claim of infringement against us, we may have to pay substantial monetary damages, including treble damages and attorneys' fees for willful infringement, pay royalties and other fees, redesign our infringing drug or obtain one or more licenses from third parties, which may be impossible or require substantial time and monetary expenditure. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business.

We may become involved in lawsuits to protect or enforce our patents or other intellectual property, which could be expensive, time consuming and unsuccessful.

Competitors or other third parties may infringe our patents, trademarks, copyrights or other intellectual property. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time consuming and divert the time and attention of our management and scientific personnel. Our pending patent applications cannot be enforced against third parties practicing the technology claimed in such applications unless and until a patent issues from such applications. Any claims we assert against perceived infringers could provoke these parties to assert counterclaims against us alleging that we infringe their patents, in addition to counterclaims asserting that our patents are invalid or unenforceable, or both. In patent litigation in the United States, defendant counterclaims alleging invalidity and/or unenforceability are commonplace. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness, non-enablement or insufficient written description. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant information from the USPTO or made a misleading statement during prosecution. The outcome following legal assertions of invalidity and unenforceability is unpredictable. In any patent infringement

proceeding, there is a risk that a court will decide that a patent of ours is invalid or unenforceable, in whole or in part, and that we do not have the right to stop the other party from using the invention at issue. There is also a risk that, even if the validity of such patents is upheld, the court will construe the patent's claims narrowly or decide that we do not have the right to stop the other party from using the invention at issue on the grounds that our patent claims do not cover the invention, or decide that the other party's use of our patented technology falls under the safe harbor to patent infringement under 35 U.S.C. §271(e)(1). An adverse outcome in a litigation or proceeding involving our patents could limit our ability to assert our patents against those parties or other competitors and may curtail or preclude our ability to exclude third parties from making and selling similar or competitive products. Any of these occurrences could adversely affect our competitive business position, business prospects and financial condition. Similarly, if we assert trademark infringement claims, a court may determine that the marks we have asserted are invalid or unenforceable, or that the party against whom we have asserted trademark infringement has superior rights to the marks in question. In this case, we could ultimately be forced to cease use of such trademarks.

Even if we establish infringement, the court may decide not to grant an injunction against further infringing activity and instead award only monetary damages, which may or may not be an adequate remedy. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during litigation. There could also be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a material adverse effect on the price of shares of our common stock. Moreover, we cannot assure you that we will have sufficient financial or other resources to file and pursue such infringement claims, which typically last for years before they are concluded. Even if we ultimately prevail in such claims, the monetary cost of such litigation and the diversion of the attention of our management and scientific personnel could outweigh any benefit we receive as a result of the proceedings.

Because of the expense and uncertainty of litigation, we may not be in a position to enforce our intellectual property rights against third parties.

Because of the expense and uncertainty of litigation, we may conclude that even if a third-party is infringing our issued patent, any patents that may be issued as a result of our pending or future patent applications or other intellectual property rights, the risk-adjusted cost of bringing and enforcing such a claim or action may be too high or not in the best interest of our company or our stockholders, or it may be otherwise impractical or undesirable to enforce our intellectual property against some third parties. Our competitors or other third parties may be able to sustain the costs of complex patent litigation or proceedings more effectively than we can because of their greater financial resources and more mature and developed intellectual property portfolios. In such cases, we may decide that the more prudent course of action is to simply monitor the situation or initiate or seek some other non-litigious action or solution. In addition, the uncertainties associated with litigation could compromise our ability to raise the funds necessary to continue our clinical trials, continue our internal research programs, in-license needed technology or other product candidates, or enter into development partnerships that would help us bring our product candidates to market.

We may be subject to claims that our employees, consultants or independent contractors have wrongfully used or disclosed confidential information of third parties.

We could in the future be subject to claims that we or our employees have inadvertently or otherwise used or disclosed alleged trade secrets or other confidential information of former employers or competitors. Although we try to ensure that our employees and consultants do not use the intellectual property, proprietary information, know-how or trade secrets of others in their work for us, we may become subject to claims that we caused an employee to breach the terms of his or her non-competition or non-solicitation agreement, or that we or these individuals have, inadvertently or otherwise, used or disclosed the alleged trade secrets or other proprietary information of a former employer or competitor.

While we may litigate to defend ourselves against these claims, even if we are successful, litigation could result in substantial costs and could be a distraction to management. If our defenses to these claims fail, in addition to requiring us to pay monetary damages, a court could prohibit us from using technologies or features that are essential to our product candidates, if such technologies or features are found to incorporate or be derived from the trade secrets or other proprietary information of the former employers. Moreover, any such litigation or the threat thereof may adversely affect our reputation, our ability to form strategic alliances or sublicense our rights to collaborators, engage with scientific advisors or hire employees or consultants, each of which would have an adverse effect on our business, results of operations and financial condition. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management.

We may not be able to protect our intellectual property rights throughout the world.

Patents are of national or regional effect, and filing, prosecuting and defending patents on all of our product candidates throughout the world would be prohibitively expensive. As such, our intellectual property rights in some countries outside the United States can be less extensive than those in the United States and we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products or technology and may export otherwise infringing products or technology to territories where we have patent protection, but enforcement rights are not as strong as those in the United States. These products may compete with our products, and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing. Further, the legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection, particularly those relating to pharmaceuticals or biologics, which could make it difficult for us to stop the infringement of our patents or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing and could provoke third parties to assert claims against us. We may not prevail in any such lawsuits that we initiate and the damages and other remedies awarded, if any, may not be commercially meaningful. Similarly, if our trade secrets are disclosed in a foreign jurisdiction, competitors worldwide could have access to our proprietary information and we may be without satisfactory recourse. Such disclosure could have a material adverse effect on our business. Moreover, our ability to protect and enforce our intellectual property rights may be adversely affected by unforeseen changes in foreign intellectual property laws. In addition, certain developing countries, including China and India, have compulsory licensing laws under which a patent owner may be compelled to grant licenses to third parties. In those countries, we and our licensors may have limited remedies if patents are infringed or if we or our licensors are compelled to grant a license to a third-party, which could materially diminish the value of those patents. In addition, many countries limit the enforceability of patents against government agencies or government contractors. This could limit our potential revenue opportunities. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

Changes in patent law in the United States and other jurisdictions could diminish the value of patents in general, thereby impairing our ability to protect our product candidates.

As is the case with other biopharmaceutical companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biopharmaceutical industry involves both technological and legal complexity and is therefore costly, time consuming and inherently uncertain. Changes in either the patent laws or interpretation of the patent laws in the United States could increase the uncertainties and costs, and may diminish our ability to protect our inventions, obtain, maintain, and enforce our intellectual property rights and, more generally, could affect the value of our intellectual property or narrow the scope of our owned and licensed patents. Recent patent reform legislation in the United States and other countries, including

the Leahy-Smith America Invents Act, or the Leahy-Smith Act, signed into law on September 16, 2011, could increase those uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents. The Leahy-Smith Act includes a number of significant changes to U.S. patent law. These include provisions that affect the way patent applications are prosecuted, redefine prior art and provide more efficient and cost-effective avenues for competitors to challenge the validity of patents. These include allowing third-party submission of prior art to the USPTO during patent prosecution and additional procedures to attack the validity of a patent by USPTO administered post-grant proceedings, including post-grant review, *inter partes* review, and derivation proceedings. After March 2013, under the Leahy-Smith Act, the United States transitioned to a first inventor to file system in which, assuming that the other statutory requirements are met, the first inventor to file a patent application will be entitled to the patent on an invention regardless of whether a third-party was the first to invent the claimed invention. A third party that files a patent application in the USPTO after March 2013, but before we file an application covering the same invention, could therefore be awarded a patent covering an invention of ours even if we had made the invention before it was made by such third party. This will require us to be cognizant going forward of the time from invention to filing of a patent application. Since patent applications in the United States and most other countries are confidential for a period of time after filing or until issuance, we cannot be certain that we or our licensors were the first to either (1) file any patent application related to our product candidates and other proprietary technologies we may develop or (2) invent any of the inventions claimed in our or our licensor's patents or patent applications. Even where we have a valid and enforceable patent, we may not be able to exclude others from practicing the claimed invention where the other party can show that they used the invention in commerce before our filing date or the other party benefits from a compulsory license. However, the Leahy-Smith Act and its implementation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents, all of which could have a material adverse effect on our business, financial condition, results of operations and prospects.

In addition, the patent positions of companies in the development and commercialization of pharmaceuticals are particularly uncertain. The U.S. Supreme Court has ruled on several patent cases in recent years, either narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations. Depending on future actions by the U.S. Congress, the U.S. courts, the USPTO and the relevant law-making bodies in other countries, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future. For example, in the 2013 case *Assoc. for Molecular Pathology v. Myriad Genetics, Inc.*, the U.S. Supreme Court held that certain claims to DNA molecules are not patentable. While we do not believe that any of the patents owned or licensed by us will be found invalid based on this decision, we cannot predict how future decisions by the courts, the U.S. Congress or the USPTO may impact the value of our patents.

Obtaining and maintaining patent protection depends on compliance with various procedural, document submissions, fee payment and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

Periodic maintenance fees, renewal fees, annuities fees and various other governmental fees on patents and/or patent applications are due to be paid to the USPTO and foreign patent agencies in several stages over the lifetime of the patent and/or patent application. The USPTO and various foreign governmental patent agencies also require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. While an inadvertent lapse, including due to the effect of the COVID-19 pandemic on us or our patent maintenance vendors, can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. Non-compliance events that could result in abandonment or lapse of a patent or patent application include, but are not limited to, failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. If we fail to maintain the

patents and patent applications covering our product candidates, our competitive position would be adversely affected.

We may rely on trade secret and proprietary know-how which can be difficult to trace and enforce and, if we are unable to protect the confidentiality of our trade secrets, our business and competitive position would be harmed.

In addition to seeking patents for some of our technology and product candidates, we may also rely on trade secrets, including unpatented know-how, technology and other proprietary information, to maintain our competitive position. Elements of our product candidate, including processes for their preparation and manufacture, may involve proprietary know-how, information, or technology that is not covered by patents, and thus for these aspects we may consider trade secrets and know-how to be our primary intellectual property. Any disclosure, either intentional or unintentional, by our employees, the employees of third parties with whom we share our facilities or third-party consultants and vendors that we engage to perform research, clinical trials or manufacturing activities, or misappropriation by third parties (such as through a cybersecurity breach) of our trade secrets or proprietary information could enable competitors to duplicate or surpass our technological achievements, thus eroding our competitive position in our market. Because we expect to rely on third parties in the development and manufacture of our product candidates, we must, at times, share trade secrets with them. Our reliance on third parties requires us to share our trade secrets, which increases the possibility that a competitor will discover them or that our trade secrets will be misappropriated or disclosed.

Trade secrets and know-how can be difficult to protect. We require our employees to enter into written employment agreements containing provisions of confidentiality and obligations to assign to us any inventions generated in the course of their employment. We and any third parties with whom we share facilities enter into written agreements that include confidentiality and intellectual property obligations to protect each party's property, potential trade secrets, proprietary know-how, and information. We further seek to protect our potential trade secrets, proprietary know-how, and information in part, by entering into non-disclosure and confidentiality agreements with parties who are given access to them, such as our corporate collaborators, outside scientific collaborators, contract research organizations, contract manufacturers, consultants, advisors and other third parties. With our consultants, contractors, and outside scientific collaborators, these agreements typically include invention assignment obligations. We cannot guarantee that we have entered into such agreements with each party that may have or has had access to our trade secrets or proprietary technology and processes. We cannot be certain that our trade secrets and other confidential proprietary information will not be disclosed or that competitors will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. Despite these efforts, any of these parties may breach the agreements and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. In addition, some courts inside and outside the United States are less willing or unwilling to protect trade secrets. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor or other third-party, we would have no right to prevent them from using that technology or information to compete with us. If any of our trade secrets were to be disclosed to or independently developed by a competitor or other third-party, our competitive position would be harmed.

We may become subject to claims challenging the inventorship or ownership of our patents and other intellectual property.

We may be subject to claims that former employees, collaborators or other third parties have an interest in our patents or other intellectual property as an inventor or co-inventor. The failure to name the proper inventors on a patent application can result in the patents issuing thereon being unenforceable. Inventorship disputes may arise from conflicting views regarding the contributions of different individuals named as inventors, the effects of foreign laws where foreign nationals are involved in the development of the subject

matter of the patent, conflicting obligations of third parties involved in developing our product candidates or as a result of questions regarding co-ownership of potential joint inventions. Litigation may be necessary to resolve these and other claims challenging inventorship and/or ownership. Alternatively, or additionally, we may enter into agreements to clarify the scope of our rights in such intellectual property. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights, such as exclusive ownership of, or right to use, valuable intellectual property. Such an outcome could have a material adverse effect on our business. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees.

Our licensors may have relied on third-party consultants or collaborators or on funds from third parties, such as the U.S. government, such that our licensors are not the sole and exclusive owners of the patents we in-licensed. If other third parties have ownership rights or other rights to our in-licensed patents, they may be able to license such patents to our competitors, and our competitors could market competing products and technology. This could have a material adverse effect on our competitive position, business, financial conditions, results of operations, and prospects.

In addition, while it is our policy to require our employees and contractors who may be involved in the conception or development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who, in fact, conceives or develops intellectual property that we regard as our own. The assignment of intellectual property rights may not be self-executing, or the assignment agreements may be breached, and we may be forced to bring claims against third parties, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property. Such claims could have a material adverse effect on our business, financial condition, results of operations, and prospects.

Patent terms may be inadequate to protect our competitive position on our product candidates for an adequate amount of time.

Patent rights are of limited duration. In the United States, if all maintenance fees are paid timely, the natural expiration of a patent is generally 20 years after its first effective filing date. Given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such product candidates are commercialized. Even if patents covering our product candidates are obtained, once the patent life has expired for a product, we may be open to competition from biosimilar or generic products. As a result, our patent portfolio may not provide us with sufficient rights to exclude others from commercializing product candidates similar or identical to ours. Upon issuance in the United States, a patent's life can be increased based on certain delays caused by the USPTO, but this increase can be reduced or eliminated based on certain delays caused by the patent applicant during patent prosecution. A patent term extension based on regulatory delay may be available in the United States. However, only a single patent can be extended for each marketing approval, and any patent can be extended only once, for a single product. Moreover, the scope of protection during the period of the patent term extension does not extend to the full scope of the claim, but instead only to the scope of the product as approved. Laws governing analogous patent term extensions in foreign jurisdictions vary widely, as do laws governing the ability to obtain multiple patents from a single patent family. Additionally, we may not receive an extension if we fail to exercise due diligence during the testing phase or regulatory review process, apply within applicable deadlines, fail to apply prior to expiration of relevant patents or otherwise fail to satisfy applicable requirements. If we are unable to obtain patent term extension or restoration, or the term of any such extension is less than we request, the period during which we will have the right to exclusively market our product will be shortened and our competitors may obtain approval of competing products following our patent expiration and may take advantage of our investment in development and clinical trials by referencing our clinical and preclinical data to launch their product earlier than might otherwise be the case, and our revenue could be reduced, possibly materially.

If our trademarks and trade names are not adequately protected, then we may not be able to build name recognition in our markets of interest and our business may be adversely affected.

Our current or future trademarks or trade names may be challenged, infringed, circumvented or declared generic or descriptive determined to be infringing on other marks. We may not be able to protect our rights to these trademarks and trade names or may be forced to stop using these names, which we need for name recognition by potential partners or customers in our markets of interest. During trademark registration proceedings, we may receive rejections of our applications by the USPTO or in other foreign jurisdictions. Although we would be given an opportunity to respond to those rejections, we may be unable to overcome such rejections. In addition, in the USPTO and in comparable agencies in many foreign jurisdictions, third parties are given an opportunity to oppose pending trademark applications and to seek to cancel registered trademarks. Opposition or cancellation proceedings may be filed against our trademarks, and our trademarks may not survive such proceedings. If we are unable to establish name recognition based on our trademarks and trade names, we may not be able to compete effectively and our business may be adversely affected. We may license our trademarks and trade names to third parties, such as distributors. Though these license agreements may provide guidelines for how our trademarks and trade names may be used, a breach of these agreements or misuse of our trademarks and tradenames by our licensees may jeopardize our rights in or diminish the goodwill associated with our trademarks and trade names.

Moreover, any name we have proposed to use with our product candidate in the United States must be approved by the FDA, regardless of whether we have registered it, or applied to register it, as a trademark. Similar requirements exist in Europe. The FDA typically conducts a review of proposed product names, including an evaluation of potential for confusion with other product names. If the FDA (or an equivalent administrative body in a foreign jurisdiction) objects to any of our proposed proprietary product names, it may be required to expend significant additional resources in an effort to identify a suitable substitute name that would qualify under applicable trademark laws, not infringe the existing rights of third parties and be acceptable to the FDA. Furthermore, in many countries, owning and maintaining a trademark registration may not provide an adequate defense against a subsequent infringement claim asserted by the owner of a senior trademark. At times, competitors or other third parties may adopt trade names or trademarks similar to ours, thereby impeding our ability to build brand identity and possibly leading to market confusion. In addition, there could be potential trade name or trademark infringement claims brought by owners of other registered trademarks or trademarks that incorporate variations of our registered or unregistered trademarks or trade names. If we assert trademark infringement claims, a court may determine that the marks we have asserted are invalid or unenforceable, or that the party against whom we have asserted trademark infringement has superior rights to the marks in question. In this case, we could ultimately be forced to cease use of such trademarks.

Risks Related to Our Common Stock and this Offering

There has been no prior public market for our common stock, the stock price of our common stock may be volatile or may decline regardless of our operating performance and you may not be able to resell your shares at or above the initial public offering price.

There has been no public market for our common stock prior to this offering. The initial public offering price for our common stock will be determined through negotiations between the underwriters and us and may vary from the market price of our common stock following this offering. If you purchase shares of our common stock in this offering, you may not be able to resell those shares at or above the initial public offering price. An active or liquid market in our common stock may not develop upon the completion of this offering or, if it does develop, it may not be sustainable. The market price of our common stock may fluctuate significantly in response to numerous factors, many of which are beyond our control, including:

- overall performance of the equity markets;
- our operating performance and the performance of other similar companies;

- the published opinions and third-party valuations by banking and market analysts;
- results from our ongoing clinical trials and future clinical trials with our current and future product candidates or of our competitors;
- changes in our projected operating results that we provide to the public, our failure to meet these projections or changes in recommendations by securities analysts that elect to follow our common stock;
- regulatory or legal developments in the United States and other countries;
- the level of expenses related to future product candidates or clinical development programs;
- our failure to achieve product development goals in the timeframe we announce;
- announcements of acquisitions, strategic alliances or significant agreements by us or by our competitors;
- recruitment or departure of key personnel;
- the economy as a whole and market conditions in our industry;
- trading activity by a limited number of stockholders who together beneficially own a majority of our outstanding common stock;
- the expiration of market standoff or contractual lock-up agreements;
- the size of our market float;
- the ongoing and future impact of the COVID-19 pandemic and actions taken to slow its spread; and
- any other factors discussed in this prospectus.

In addition, the stock markets have experienced extreme price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many immuno-oncology companies. Stock prices of many immuno-oncology companies have fluctuated in a manner unrelated or disproportionate to the operating performance of those companies. The trading prices for common stock of other biopharmaceutical companies have also been highly volatile as a result of the COVID-19 pandemic. In the past, stockholders have filed securities class action litigation following periods of market volatility. If we were to become involved in securities litigation, it could subject us to substantial costs, divert resources and the attention of management from our business and adversely affect our business.

Our principal stockholders and management own a significant percentage of our stock and will be able to exert significant control over matters subject to stockholder approval.

As of June 24, 2020, our executive officers, directors, five percent stockholders and their affiliates beneficially own approximately 76.3% of our voting stock and, upon closing of this offering, that same group will beneficially own approximately 63.8% of our outstanding voting stock. Therefore, even after this offering, these stockholders will have the ability to influence us through their ownership positions. These stockholders may be able to determine all matters requiring stockholder approval. For example, these stockholders, acting together, may be able to control elections of directors, amendments of our organizational documents, or approval of any merger, sale of assets, or other major corporate transaction. This may prevent or discourage unsolicited acquisition proposals or offers for our common stock that you may believe are in your best interest as one of our stockholders.

In addition, Dr. Ostertag, our Chief Executive Officer, a member of our board of directors and the beneficial owner of approximately 21.1% of our voting stock as of June 24, 2020, is a member of the board of directors of Transposagen, served as its Chief Executive Officer from its inception until July 2015 and, together with his affiliated entities, owns on a fully-diluted basis, 74.14% of its capital stock. In addition, Dr. Ostertag is also the sole director of Demeetra AgBio, Inc., or Demeetra, serves as its President and Secretary and together with his affiliated entities, owns on a fully-diluted basis, 62.5% of its capital stock. Further, Dr. Ostertag is also a member of the board of directors of Hera Testing Laboratories, Inc., or Hera, and served as its Chief Executive Officer from inception until July 2015 and, together with his affiliated entities, owns on a fully-diluted basis, 41.7% of its capital stock.

As a result, the interests of Dr. Ostertag may not be aligned with the interests of you and our other stockholders with respect to our relationships with Hera and Deemetra, and he may from time to time be incentivized to take certain actions that benefit his interests in those other entities and that you and our other stockholders do not view as being in your interest as investors in our company.

Substantial amounts of our outstanding shares may be sold into the market when lock-up or market standoff periods end. If there are substantial sales of shares of our common stock, the price of our common stock could decline.

The price of our common stock could decline if there are substantial sales of our common stock, particularly sales by our directors, executive officers and significant stockholders, or if there is a large number of shares of our common stock available for sale and the market perceives that sales will occur. After this offering, we will have 57,815,886 outstanding shares of our common stock, based on the number of shares outstanding as of March 31, 2020. All of the shares of common stock sold in this offering will be available for sale in the public market. Substantially all of our outstanding shares of common stock are currently restricted from resale as a result of market standoff and lock-up agreements, as more fully described in the section titled “Shares Eligible for Future Sale.” These shares will become available to be sold 181 days after the date of this prospectus, in addition to shares issuable pursuant to outstanding option and warrants. Shares held by directors, executive officers and other affiliates will be subject to volume limitations under Rule 144 under the Securities Act of 1933, as amended, or the Securities Act, and various vesting agreements.

After the completion of this offering, certain of our stockholders will have rights, subject to some conditions, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or our stockholders, subject to market standoff and lockup agreements. We also intend to register shares of common stock that we have issued and may issue under our employee equity incentive plans. Once we register these shares, they will be able to be sold freely in the public market upon issuance, subject to existing market standoff or lock-up agreements.

BofA Securities, Inc. and Piper Sandler & Co. may, in their discretion, permit our stockholders to sell shares prior to the expiration of the restrictive provisions contained in those lock-up agreements.

The market price of the shares of our common stock could decline as a result of the sale of a substantial number of our shares of common stock in the public market or the perception in the market that the holders of a large number of shares intend to sell their shares.

If you purchase shares of our common stock in this offering, you will experience substantial and immediate dilution.

If you purchase shares of our common stock in this offering, you will experience substantial and immediate dilution in the pro forma net tangible book value per share of $10.04 per share as of March 31, 2020, based on an assumed initial public offering price of our common stock of $15.00 per share, which is the midpoint of the estimated price range set forth on the cover page of this prospectus, because the price that you pay will be

substantially greater than the pro forma net tangible book value per share of the common stock that you acquire. This dilution is due in large part to the fact that our earlier investors paid substantially less than the initial public offering price when they purchased their shares of our capital stock. You will experience additional dilution upon exercise of options to purchase common stock under our equity incentive plans, upon vesting of options to purchase common stock under our equity incentive plans, if we issue restricted stock to our employees under our equity incentive plans or if we otherwise issue additional shares of our common stock.

Future sales and issuances of our common stock or rights to purchase common stock, including pursuant to our equity incentive plans, could result in additional dilution of the percentage ownership of our stockholders and could cause our stock price to fall.

Additional capital will be needed in the future to continue our planned operations. To the extent we raise additional capital by issuing equity securities, our stockholders may experience substantial dilution. We may sell common stock, convertible securities or other equity securities in one or more transactions at prices and in a manner, we determine from time to time. If we sell common stock, convertible securities or other equity securities in more than one transaction, investors may be materially diluted by subsequent sales. These sales may also result in material dilution to our existing stockholders, and new investors could gain rights superior to our existing stockholders.

Pursuant to our 2020 Equity Incentive Plan, or the 2020 Plan, our management is authorized to grant stock options and other equity-based awards to our employees, directors and consultants. The number of shares of our common stock reserved for issuance under our 2020 Plan will automatically increase on January 1 of each calendar year, starting on January 1, 2021 through January 1, 2030, in an amount equal to the lesser of (1) 5% of the total number of shares of our common stock outstanding on the last day of the calendar month before the date of each automatic increase, or (2) a lesser number of shares determined by our board of directors prior to the applicable January 1st. If our board of directors elects to increase the number of shares available for future grant by the maximum amount each year, our stockholders may experience additional dilution, which could cause our stock price to fall.

We could be subject to securities class action litigation.

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because pharmaceutical companies have experienced significant stock price volatility in recent years. If we face such litigation, it could result in substantial costs and a diversion of management’s attention and resources, which could harm our business.

We will have broad discretion in the use of the net proceeds of this offering and may not use them effectively or in ways that increase the value of our share price.

We cannot specify with any certainty the particular uses of the net proceeds that we will receive from this offering, but we currently expect such uses will include advancing our clinical product candidates into later-stage clinical trials and combination trials, advancing our research product candidates into clinical development, supporting our ongoing drug discovery efforts and supporting our growing infrastructure and needs in operating as a public company. We will have broad discretion in the application of the net proceeds, including working capital and other general corporate purposes, and you and other stockholders may disagree with how we spend or invest these proceeds. The failure by our management to apply these funds effectively could adversely affect our business and financial condition. Pending their use, we may invest the net proceeds from our initial public offering in a manner that does not produce income or that loses value. These investments may not yield a favorable return to our investors.

If securities or industry analysts do not publish research or publish inaccurate or unfavorable research about our business, our stock price and trading volume could decline.

The trading market for our common stock will depend in part on the research and reports that securities or industry analysts publish about us or our business. Securities and industry analysts do not currently, and may never, publish research on our company. If no or only very few securities analysts commence coverage of us, or if industry analysts cease coverage of us, the trading price for our common stock would be negatively affected. If one or more of the analysts who cover us downgrade our common stock or publish inaccurate or unfavorable research about our business, our common stock price would likely decline. If one or more of these analysts cease coverage of us or fail to publish reports on us regularly, demand for our common stock could decrease, which might cause our common stock price and trading volume to decline.

Requirements associated with being a public company will increase our costs significantly, as well as divert significant company resources and management attention.

After the completion of this offering, we will be subject to the reporting requirements of the Securities Exchange Act of 1934, as amended, or the Exchange Act, or the other rules and regulations of the SEC or any securities exchange relating to public companies. Compliance with the various reporting and other requirements applicable to public companies requires considerable time and attention of management. We cannot assure you that we will satisfy our obligations as a public company on a timely basis.

In addition, as a public company, it may be more difficult or more costly for us to obtain certain types of insurance, including directors' and officers' liability insurance, and we may be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. The impact of these events could also make it more difficult for us to attract and retain qualified personnel to serve on our board of directors, our board committees or as executive officers.

We have identified material weaknesses in our internal control over financial reporting. If our remediation of the material weaknesses is not effective, or if we experience additional material weaknesses in the future or otherwise fail to maintain an effective system of internal controls in the future, we may not be able to accurately or timely report our financial condition or results of operations, which may adversely affect investor confidence in us and, as a result, the value of our common stock.

After the completion of this offering, we will be subject to the reporting requirements of the Exchange Act, the Sarbanes-Oxley Act and the rules and regulations of the Nasdaq Stock Market. The Sarbanes-Oxley Act requires, among other things, that we maintain effective disclosure controls and procedures and internal controls over financial reporting. Prior to the completion of this offering, we have been a private company with limited accounting personnel to adequately execute our accounting processes and other supervisory resources with which to address our internal control over financial reporting and, as a result, we may experience difficulty in meeting these reporting requirements in a timely manner. To date, we have never conducted a review of our internal control for the purpose of providing the reports required by the Sarbanes-Oxley Act. During our review and testing, we may identify deficiencies and be unable to remediate them before we must provide the required reports.

We previously identified material weaknesses in our internal control over financial reporting. A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our annual or interim consolidated financial statements will not be prevented or detected on a timely basis. These material weaknesses related to a lack of a sufficient complement of accounting resources, which led to our inability to maintain segregation of duties between the creation and posting of journal entries and review of account reconciliations. These material weaknesses did not result in a misstatement to our consolidated financial statements.

We have hired additional accounting personnel and will continue to take appropriate and reasonable steps to remediate these material weaknesses through the implementation of appropriate segregation of duties. However, we cannot assure you that these measures will significantly improve or remediate the material weaknesses described above.

We may discover additional weaknesses in our system of internal financial and accounting controls and procedures that could result in a material misstatement of our consolidated financial statements. Our internal control over financial reporting will not prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud will be detected.

If we are not able to comply with the requirements of Section 404 of the Sarbanes-Oxley Act in a timely manner, or if we are unable to maintain proper and effective internal controls over financial reporting, we may not be able to produce timely and accurate financial statements. If that were to happen, our investors could lose confidence in our reported financial information, the market price of our stock could decline, and we could be subject to sanctions or investigations by the SEC or other regulatory authorities.

Our disclosure controls and procedures may not prevent or detect all errors or acts of fraud.

Upon the completion of this offering, we will become subject to the periodic reporting requirements of the Exchange Act. We designed our disclosure controls and procedures to reasonably assure that information we must disclose in reports we file or submit under the Exchange Act is accumulated and communicated to management, and recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC. We believe that any disclosure controls and procedures or internal controls and procedures, no matter how well-conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met.

These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur because of simple error or mistake. For example, our directors or executive officers could inadvertently fail to disclose a new relationship or arrangement causing us to fail to make any related party transaction disclosures. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by an unauthorized override of the controls. Accordingly, because of the inherent limitations in our control system, misstatements due to error or fraud may occur and not be detected.

Future changes in financial accounting standards or practices may cause adverse and unexpected revenue fluctuations and adversely affect our reported results of operations.

Future changes in financial accounting standards may cause adverse, unexpected revenue fluctuations and affect our reported financial position or results of operations. Financial accounting standards in the United States are constantly under review and new pronouncements and varying interpretations of pronouncements have occurred with frequency in the past and are expected to occur again in the future. As a result, we may be required to make changes in our accounting policies. Those changes could affect our financial condition and results of operations or the way in which such financial condition and results of operations are reported. We intend to invest resources to comply with evolving standards, and this investment may result in increased general and administrative expenses and a diversion of management time and attention from business activities to compliance activities. See the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations—Recent Accounting Pronouncements."

We are an "emerging growth company," and we cannot be certain if the reduced reporting requirements applicable to emerging growth companies will make our common stock less attractive to investors.

We are an "emerging growth company" as defined in the JOBS Act, and we intend to take advantage of some of the exemptions from reporting requirements that are applicable to other public companies that are not emerging growth companies, including:

- being permitted to provide only two years of audited financial statements, in addition to any required unaudited interim financial statements, with correspondingly reduced "Management's Discussion and Analysis of Financial Condition and Results of Operations" disclosure;
- not being required to comply with the auditor attestation requirements in the assessment of our internal control over financial reporting;
- not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements;
- reduced disclosure obligations regarding executive compensation; and
- not being required to hold a non-binding advisory vote on executive compensation or obtain stockholder approval of any golden parachute payments not previously approved.

In addition, as an "emerging growth company" the JOBS Act allows us to delay adoption of new or revised accounting pronouncements applicable to public companies until such pronouncements are made applicable to private companies, unless we later irrevocably elect not to avail ourselves of this exemption. We have elected to use this extended transition period under the JOBS Act. As a result, our consolidated financial statements may not be comparable to the financial statements of issuers who are required to comply with the effective dates for new or revised accounting standards that are applicable to public companies, which may make comparison of our financials to those of other public companies more difficult.

We cannot predict if investors will find our common stock less attractive because we will rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile. We may take advantage of these reporting exemptions until we are no longer an emerging growth company. We will remain an emerging growth company until the earlier of (1) the last day of the fiscal year (a) following the fifth anniversary of the completion of this offering, (b) in which we have total annual gross revenue of at least $1.07 billion or (c) in which we are deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds $700 million as of the prior June 30th and (2) the date on which we have issued more than $1.0 billion in non-convertible debt during the prior three-year period.

Delaware law and provisions in our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect at the completion of this offering could make a merger, tender offer or proxy contest difficult, thereby depressing the trading price of our common stock.

Following the completion of this offering, our status as a Delaware corporation and the anti-takeover provisions of the Delaware General Corporation Law may discourage, delay or prevent a change in control by prohibiting us from engaging in a business combination with an interested stockholder for a period of three years after the person becomes an interested stockholder, even if a change of control would be beneficial to our existing stockholders. In addition, our amended and restated certificate of incorporation and amended and

restated bylaws that will be in effect at the completion of this offering will contain provisions that may make the acquisition of our company more difficult, including the following:

- a classified board of directors with three-year staggered terms, which could delay the ability of stockholders to change the membership of a majority of our board of directors;
- the ability of our board of directors to issue shares of preferred stock and to determine the price and other terms of those shares, including preferences and voting rights, without stockholder approval, which could be used to significantly dilute the ownership of a hostile acquirer;
- the exclusive right of our board of directors to elect a director to fill a vacancy created by the expansion of our board of directors or the resignation, death or removal of a director, which prevents stockholders from being able to fill vacancies on our board of directors;
- a prohibition on stockholder action by written consent, which forces stockholder action to be taken at an annual or special meeting of our stockholders;
- the requirement that a special meeting of stockholders may be called only by a majority vote of our entire board of directors, the chairman of our board of directors or our chief executive officer, which could delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors;
- the requirement for the affirmative vote of holders of at least 66-2/3% of the voting power of all of the then-outstanding shares of the voting stock, voting together as a single class, to amend the provisions of our amended and restated certificate of incorporation relating to the management of our business or our amended and restated bylaws, which may inhibit the ability of an acquirer to affect such amendments to facilitate an unsolicited takeover attempt; and
- advance notice procedures with which stockholders must comply to nominate candidates to our board of directors or to propose matters to be acted upon at a stockholders' meeting, which may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of us.

In addition, as a Delaware corporation, we are subject to Section 203 of the Delaware General Corporation Law. These provisions may prohibit large stockholders, in particular those owning 15% or more of our outstanding voting stock, from merging or combining with us for a certain period of time. A Delaware corporation may opt out of this provision by express provision in its original certificate of incorporation or by amendment to its certificate of incorporation or bylaws approved by its stockholders. However, we have not opted out of this provision.

These and other provisions in our amended and restated certificate of incorporation, amended and restated bylaws and Delaware law could make it more difficult for stockholders or potential acquirors to obtain control of our board of directors or initiate actions that are opposed by our then-current board of directors, including delay or impede a merger, tender offer or proxy contest involving our company. The existence of these provisions could negatively affect the price of our common stock and limit opportunities for you to realize value in a corporate transaction.

For information regarding these and other provisions, see the section titled "Description of Capital Stock."

Our amended and restated certificate of incorporation, which will become effective upon the closing of this offering designates the state courts in the State of Delaware or, if no state court located within the State of Delaware has jurisdiction, the federal court for the District of Delaware, as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders, which could discourage lawsuits against our company and our directors, officers and employees.

Our amended and restated certificate of incorporation, which will become effective upon the closing of this offering provide that, to the fullest extent permitted by law, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware (or, if the Court of Chancery does not have jurisdiction, the federal district court for the District of Delaware) will be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law: (1) any derivative action or proceeding brought on our behalf; (2) any action or proceeding asserting a claim of breach of a fiduciary duty owed by any of our current or former directors, officers or other employees to us or our stockholders; (3) any action or proceeding asserting a claim against us or any of our current or former directors, officers or other employees, arising out of or pursuant to any provision of the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated bylaws; (4) any action or proceeding to interpret, apply, enforce or determine the validity of our amended and restated certificate of incorporation or our amended and restated bylaws; (5) any action or proceeding as to which the Delaware General Corporation Law confers jurisdiction to the Court of Chancery of the State of Delaware; and (6) any action asserting a claim against us or any of our directors, officers or other employees, governed by the internal affairs doctrine; provided, that, this provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act, or any other claim for which the federal courts have exclusive jurisdiction.

In addition, our amended and restated certificate of incorporation will provide that, to the fullest extent permitted by law, the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act, unless we consent in writing to the selection of an alternative forum.

These exclusive-forum provisions may limit a stockholder’s ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees and may discourage these types of lawsuits, although our stockholders will not be deemed to have waived our compliance with federal securities laws and the rules and regulations thereunder. Furthermore, if a court were to find the exclusive-forum provisions contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus includes forward-looking statements. All statements other than statements of historical facts contained in this prospectus are forward-looking statements, including statements about:

- our expectations regarding the timing, scope and results of our development activities, including our ongoing and planned clinical trials;
- the timing of and plans for regulatory filings;
- our plans to obtain and maintain regulatory approvals of our product candidates in any of the indications for which we plan to develop them, and any related restrictions, limitations, and/or warnings in the label of an approved product candidate;
- the potential benefits of our product candidates and technologies;
- our expectations regarding the use of our platform technologies to generate novel product candidates;
- the market opportunities for our product candidates and our ability to maximize those opportunities;
- our business strategies and goals;
- estimates of our expenses, capital requirements, any future revenue, and need for additional financing;
- our expectations regarding establishing manufacturing capabilities;
- the performance of our third-party suppliers and manufacturers;
- our expectations regarding our ability to obtain and maintain intellectual property protection for our platform technologies and product candidates and our ability to operate our business without infringing on the intellectual property rights of others;
- our expectations regarding developments and projections relating to our competitors, competing therapies that are or become available, and our industry;
- our expectations regarding the impact of the COVID-19 pandemic on our business, our industry and the economy;
- future changes in or impact of law and regulations in the United States and foreign countries; and
- our expectations regarding the uses of the net proceeds from this offering and the sufficiency of such net proceeds together with our existing cash, cash equivalents and short-term investments to fund our operations.

The words “believe,” “may,” “will,” “estimate,” “continue,” “anticipate,” “design,” “intend,” “expect,” “could,” “plan,” “potential,” “predict,” “seek,” “should,” “would” or the negative version of these words and similar expressions are intended to identify forward-looking statements. We have based these forward-looking statements on our current expectations and projections about future events and trends that we believe may affect our financial condition, results of operations, strategy, short- and long-term business operations and objectives and financial needs.

These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including those described in the section titled “Risk Factors.” Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed in this prospectus may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements.

You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee that the future results, advancements, discoveries, levels of activity, performance or events and circumstances reflected in the forward-looking statements will be achieved or occur. Moreover, except as required by law, neither we nor any other person assumes responsibility for the accuracy and completeness of the forward-looking statements. We undertake no obligation to update publicly any forward-looking statements for any reason after the date of this prospectus to conform these statements to actual results or to changes in our expectations.

You should read this prospectus and the documents that we reference in this prospectus and have filed with the SEC as exhibits to the registration statement of which this prospectus is a part with the understanding that our actual future results, levels of activity, performance and events and circumstances may be materially different from what we expect.

MARKET, INDUSTRY AND OTHER DATA

Unless otherwise indicated, information contained in this prospectus concerning our industry and the markets in which we operate is based on information from independent industry and research organizations, other third-party sources and management estimates. Management estimates are derived from publicly available information released by independent industry analysts and third-party sources, as well as data from our internal research, and are based on assumptions made by us upon reviewing such data and our knowledge of such industry and markets which we believe to be reasonable. In some cases, we do not expressly refer to the sources from which this data is derived. Although we believe the data from these third-party sources is reliable, we have not independently verified any third-party information. Further, while we believe our internal research is reliable, such research has not been verified by any third party. In addition, projections, assumptions and estimates of the future performance of the industry in which we operate and our future performance are necessarily subject to uncertainty and risk due to a variety of factors, including those described in the sections titled “Risk Factors” and “Special Note Regarding Forward-Looking Statements.” These and other factors could cause results to differ materially from those expressed in the estimates made by the independent parties and by us. You are cautioned not to give undue weight to any such information, projections and estimates.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our capital stock and we do not currently intend to pay any cash dividends on our capital stock for the foreseeable future. We currently intend to retain all available funds and any future earnings to support operations and to finance the growth and development of our business. Any future determination to pay dividends will be made at the discretion of our board of directors, subject to applicable laws and will depend upon, among other factors, our results of operations, financial condition, contractual restrictions and capital requirements. In addition, our loan agreement governing our indebtedness contains restrictions on our ability to declare and pay cash dividends on our capital stock.

USE OF PROCEEDS

We estimate that the net proceeds from this offering will be approximately $136.0 million, or $156.9 million if the underwriters exercise their option to purchase additional shares in full, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us, assuming an initial public offering price of $15.00 per share, which is the midpoint of the estimated price range set forth on the cover page of this prospectus.

Each $1.00 increase (decrease) in the assumed initial public offering price of $15.00 per share, would increase (decrease) the net proceeds to us from this offering by $9.3 million, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the estimated underwriting discounts and commissions. Similarly, each increase (decrease) of 1.0 million shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase (decrease) our net proceeds from this offering by $13.9 million, assuming no change in the assumed initial public offering price per share and after deducting the estimated underwriting discounts and commissions.

The principal purposes of this offering are to obtain additional capital to support our operations, establish a public market for our common stock and facilitate our future access to the public capital markets. We intend to use the net proceeds from this offering, together with our existing cash, cash equivalents and short-term investments, as follows:

- approximately $70.0 million for our ongoing clinical development of P-BCMA-101 for relapsed/refractory multiple myeloma, including clinical trial costs and manufacturing expenses;
- approximately $25.0 million for our ongoing clinical development of P-PSMA-101 for mCRPC, including clinical trial costs and manufacturing expenses;
- approximately $10.0 million for our planned clinical development of P-BCMA-ALLO1 for relapsed/refractory multiple myeloma, including clinical trial costs and manufacturing expenses; and
- the remainder for developing our gene therapy and other CAR-T preclinical product candidates and research programs, as well as for working capital and other general corporate purposes.

Based upon our current operating plan, we believe that the net proceeds from this offering, together with our existing cash, cash equivalents and short-term investments, will enable us to fund our operations through at least the next 18 months from the date of this offering, including through completion of the potentially registrational Phase 2 clinical trial of P-BCMA-101 for relapsed/refractory multiple myeloma, and the P-PSMA-101 Phase 1 clinical trial for mCRPC, as well as early results from the P-BCMA-ALLO1 Phase 1 clinical trial. However, the expected net proceeds from this offering will not be sufficient for us to fund any of our product candidates through regulatory approval, and we will need to raise substantial additional capital to complete the development and commercialization of our product candidates. Because the time and costs to complete development of our product candidates will depend on the results of future preclinical studies and clinical trials and discussions with and decisions by regulatory authorities, we cannot reasonably estimate the amount of additional capital we will require to complete development. In particular, the cost and timing of completing development of any product candidate will vary widely depending on the outcome of on-going and future preclinical studies and clinical trials, as well as future guidance from regulatory authorities as to the number, scope and design of clinical trials that will be necessary to support regulatory applications. In addition, should data from our P-BCMA-ALLO1 program, which are anticipated to begin to be available in late 2020 or early 2021, meet our expectations, we would consider reallocating resources from P-BCMA-101 to advancing P-BCMA-ALLO1. We may also use a portion of the net proceeds from this offering designated for working capital and general corporate purposes, or to in-license, acquire or invest in complementary businesses,

technologies, products or assets. Although we currently have no agreements, commitments or obligations to do so, we evaluate such opportunities and engage in related discussions with third parties from time to time.

Our expected use of the net proceeds from this offering represents our intentions based upon our current plans and business conditions. As of the date of this prospectus, we cannot predict with certainty all of the particular uses for the net proceeds to be received upon the completion of this offering or the amounts that we will actually spend on the uses set forth above. The amounts and timing of our actual expenditures and the extent of our preclinical, clinical and future development activities may vary significantly depending on numerous factors, including the progress of our development efforts, the status of and results from our ongoing and planned clinical trials, our ability to take advantage of expedited programs or to obtain regulatory approval for product candidates, the timing and costs associated with the manufacture and supply of product candidates for clinical development or commercialization and any unforeseen cash needs. As a result, our management will retain broad discretion over the allocation of the net proceeds from this offering.

Pending our use of the net proceeds from this offering, we plan to invest the net proceeds in a variety of capital preservation investments, including short-term interest-bearing investment-grade securities, certificates of deposit or government securities.

CAPITALIZATION

The following table sets forth our cash, cash equivalents and short-term investments and capitalization as of March 31, 2020:

- on an actual basis;
- on a pro forma basis to give effect to: (1) the issuance of an aggregate of 10,018,300 shares of our Series D preferred stock in June 2020 and our receipt of approximately $109.5 million in aggregate gross proceeds therefrom, (2) the automatic conversion of all outstanding shares of our preferred stock into an aggregate of 34,445,108 shares of our common stock and the resulting reclassification of the carrying value of the preferred stock to additional paid-in capital in connection with the completion of this offering, (3) the automatic conversion of all outstanding warrants to purchase shares of preferred stock into warrants to purchase up to an aggregate of 121,122 shares of our common stock and the resulting reclassification of the carrying value of the warrant liability to additional paid-in capital in connection with the completion of this offering, and (4) the filing and effectiveness of our amended and restated certificate of incorporation, which will occur immediately prior to the completion of this offering; and
- on a pro forma as adjusted basis to give effect to (1) the pro forma adjustments set forth above and (2) the sale and issuance of 10,000,000 shares of our common stock by us in this offering and our receipt of the estimated net proceeds from this offering, assuming an initial public offering price of $15.00 per share, which is the midpoint of the estimated price range set forth on the cover page of this prospectus, and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us.

You should read this information together with our consolidated financial statements and the related notes included elsewhere in this prospectus and the information set forth in the sections titled “Selected Consolidated Financial Data” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations.”

	As of March 31, 2020		
	Actual	Pro Forma(1)	Pro Forma As Adjusted(2)
		(unaudited) (in thousands, except share and per share data)	
Cash, cash equivalents and short-term investments	$ 103,379	$ 212,879	$ 348,879
Term debt–short–term	$ 6,000	$ 6,000	$ 6,000
Term debt–long–term	$ 23,227	$ 23,227	$ 23,227
Warrant liability	$ 1,251	$ 0	$ 0
Convertible preferred stock, $0.0001 par value per share; 33,085,827 shares authorized, 32,934,785 issued and outstanding, actual; no shares authorized, issued and outstanding, pro forma and pro forma as adjusted	$ 222,173	$ —	$ —
Stockholders' (deficit) equity:			
Preferred stock, $0.0001 par value per share; no shares authorized, issued and outstanding, actual; 10,000,000 shares authorized, no shares issued and outstanding, pro forma and pro forma as adjusted	—	—	—
Common stock, $0.0001 par value per share; 57,013,463 shares authorized, 13,370,778 shares issued and outstanding, actual; 58,540,497 shares authorized, 47,815,886 shares issued and outstanding, pro forma; 250,000,000 shares authorized, 57,815,886 shares issued and outstanding, pro forma as adjusted	2	5	6
Additional paid-in capital	4,381	337,302	473,301
Accumulated other comprehensive income	130	130	130
Accumulated deficit	(180,894)	(180,894)	(180,894)
Total stockholders' equity (deficit)	(176,381)	156,543	292,543
Total capitalization	$ 76,270	$ 185,770	$ 321,770

(1) Gives effect to (i) the issuance of an aggregate of 10,018,300 shares of our Series D preferred stock in June 2020 and our receipt of approximately $109.5 million in aggregate gross proceeds therefrom, (ii) the automatic conversion of all outstanding shares of our preferred stock into an aggregate of 34,445,108 shares of our common stock and the resulting reclassification of the carrying value of the preferred stock to additional paid-in capital in connection with the completion of this offering and (iii) the automatic conversion of all outstanding warrants to purchase shares of preferred stock into warrants to purchase up to an aggregate of 121,122 shares of our common stock and the resulting reclassification of the carrying value of the warrant liability to additional paid-in capital in connection with the completion of this offering.

(2) Each $1.00 increase (decrease) in the assumed initial public offering price of $15.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted amount of each of our cash, cash equivalents and short-term investments, additional paid-in capital, total stockholders' equity (deficit) and total capitalization by approximately $9.3 million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. Similarly, each increase (decrease) of 1.0 million shares in the number of shares offered by us, as set forth on the cover page of this prospectus, at the assumed initial public offering price, would increase (decrease) each of our cash, cash equivalents and short-term investments, additional paid-in capital, total stockholders' equity (deficit) and total capitalization by approximately $13.9 million, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. The pro forma as adjusted information discussed above is illustrative only and will be adjusted based on the actual initial public offering price and other terms of this offering determined at pricing.

The outstanding share information in the table above excludes the following:

- 3,853,223 shares of common stock issuable upon the exercise of options outstanding as of March 31, 2020, with a weighted-average exercise price of $9.38 per share;

- 93,518 shares of common stock issuable upon the exercise of outstanding warrants as of March 31, 2020, with an exercise price of $4.28 per share;

- 27,604 shares of common stock issuable upon the exercise of an outstanding warrant as of March 31, 2020, with an exercise price of $7.25 per share;

- 11,183,476 shares of common stock reserved for issuance under our 2020 Plan, which will become effective in connection with this offering, as well as any automatic annual increases in the number of shares of common stock reserved for future issuance under the 2020 Plan, as more fully described in “Executive and Director Compensation—Equity Plans”;

- 615,000 shares of common stock reserved for future issuance under our 2020 ESPP, which will become effective in connection with this offering, as well as any automatic annual increases in the number of shares of common stock reserved for future issuance under the 2020 ESPP, as more fully described in “Executive and Director Compensation—Equity Plans”; and

- 537,685 shares of our common stock issuable upon the exercise of stock options to be granted to certain of our officers, directors and employees under our 2020 Plan, contingent and effective upon the execution and delivery of the underwriting agreement relating to this offering, with an exercise price that is equal to the price per share at which our common stock is first sold to the public in this offering.

DILUTION

If you invest in our common stock in this offering, your ownership interest will be immediately diluted to the extent of the difference between the assumed initial public offering price per share and the pro forma as adjusted net tangible book value per share of our common stock after this offering.

Historical net tangible book value (deficit) per share represents our total tangible assets less our liabilities and preferred stock that is not included in equity divided by the total number of shares of common stock outstanding. As of March 31, 2020, our historical net tangible book deficit was approximately $181.9 million, or $13.61 per share.

Our pro forma net tangible book value as of March 31, 2020, was approximately $151.0 million, or $3.16 per share, after giving effect to (1) the issuance of an aggregate of 10,018,300 shares of our Series D preferred stock in June 2020 and our receipt of approximately $109.5 million in aggregate gross proceeds therefrom, (2) the automatic conversion of all outstanding shares of our preferred stock into an aggregate of 34,445,108 shares of our common stock and the resulting reclassification of the carrying value of the preferred stock to additional paid-in capital immediately prior to the completion of this offering, and (3) the automatic conversion of all outstanding warrants to purchase shares of preferred stock into warrants to purchase up to an aggregate of 121,122 shares of our common stock and the resulting reclassification of the carrying value of the warrant liability to additional paid-in capital in connection with the completion of this offering.

After giving further effect to receipt of the net proceeds of our sale of 10,000,000 shares of common stock in this offering at an assumed initial public offering price of $15.00 per share, which is the midpoint of the estimated price range set forth on the cover page of this prospectus and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of March 31, 2020 would have been approximately $287.0 million, or $4.96 per share. This represents an immediate increase in pro forma net tangible book value of $1.81 per share to our existing stockholders and an immediate dilution of $10.04 per share to investors purchasing common stock in this offering.

The following table illustrates this dilution to new investors on a per share basis:

Assumed initial public offering price per share		$15.00
Historical net tangible book deficit per share at March 31, 2020	$(13.61)	
Pro forma increase in historical net tangible book value per share attributable to conversion of all outstanding shares of preferred stock	16.77	
Pro forma net tangible book value per share at March 31, 2020, before giving effect to this offering	3.16	
Increase in pro forma net tangible book value per share attributable to investors participating in this offering	1.81	
Pro forma as adjusted net tangible book value per share after this offering		4.96
Dilution per share to new investors participating in this offering		$10.04

Each $1.00 increase (decrease) in the assumed initial public offering price of $15.00 per share would increase (decrease) the pro forma as adjusted net tangible book value per share after this offering by approximately $0.16, and dilution in pro forma net tangible book value per share to new investors by approximately $0.16, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting the estimated underwriting discounts and commissions and the estimated offering expenses payable by us. Similarly, each increase of 1.0 million shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase our pro forma as adjusted net tangible book value per share after this offering by approximately $0.15 and decrease the dilution to investors

participating in this offering by approximately $0.15 per share, assuming that the assumed initial public offering price remains the same, and after deducting the estimated underwriting discounts and commissions and the estimated offering expenses payable by us. Each decrease of 1.0 million shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would decrease the pro forma as adjusted net tangible book value per share after this offering by approximately $0.16 and increase the dilution to investors participating in this offering by approximately $0.16 per share, assuming that the assumed initial public offering price remains the same, and after deducting the estimated underwriting discounts and commissions and the estimated offering expenses payable by us.

If the underwriters exercise their option to purchase 1,500,000 additional shares of our common stock in full in this offering, the pro forma as adjusted net tangible book value after the offering would be $5.19 per share, the increase in pro forma as adjusted net tangible book value per share to existing stockholders would be $2.03 per share and the dilution per share to new investors would be $9.81 per share, in each case assuming an initial public offering price of $15.00 per share.

To the extent that outstanding options or warrants with an exercise price per share that is less than the pro forma as adjusted net tangible book value per share are exercised, new investors will experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations even if we believe we have sufficient funds for our current or future operating plans. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the issuance of these securities could result in further dilution to our stockholders.

The following table summarizes on a pro forma as adjusted basis as of March 31, 2020, the number of shares of common stock purchased or to be purchased from us, the total consideration paid or to be paid to us in cash and the weighted-average price per share paid by existing stockholders for shares issued prior to this offering and the price to be paid by new investors in this offering. The calculation below is based on an assumed initial public offering price of $15.00 per share, before deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. As the table below shows, investors participating in this offering will pay an average price per share substantially higher than our existing stockholders paid.

	Shares Purchased		Total Consideration		Weighted-Average Price Per Share
	Number	Percent	Amount	Percent	
Existing stockholders	47,815,886	82.7%	$335,561,852	69.1%	$ 7.02
Investors participating in this offering	10,000,000	17.3	150,000,000	30.9	$ 15.00
Total	57,815,886	100.0%	$485,561,852	100.0%	

The foregoing tables and calculations exclude:

- 3,853,223 shares of common stock issuable upon the exercise of options outstanding as of March 31, 2020, with a weighted-average exercise price of $9.38 per share;
- 93,518 shares of common stock issuable upon the exercise of outstanding warrants as of March 31, 2020, with an exercise price of $4.28 per share;
- 27,604 shares of common stock issuable upon the exercise of an outstanding warrant as of March 31, 2020, with an exercise price of $7.25 per share;
- 11,183,476 shares of common stock reserved for issuance under our 2020 Plan, which will become effective in connection with this offering, as well as any automatic annual increases in the number of shares of common stock reserved for future issuance under the 2020 Plan, as more fully described in “Executive and Director Compensation—Equity Plans”;

- 615,000 shares of common stock reserved for future issuance under our 2020 ESPP, which will become effective in connection with this offering, as well as any automatic annual increases in the number of shares of common stock reserved for future issuance under the 2020 ESPP, as more fully described in “Executive and Director Compensation—Equity Plans”; and

- 537,685 shares of our common stock issuable upon the exercise of stock options to be granted to certain of our officers, directors and employees under our 2020 Plan, contingent and effective upon the execution and delivery of the underwriting agreement relating to this offering, with an exercise price that is equal to the price per share at which our common stock is first sold to the public in this offering.

SELECTED CONSOLIDATED FINANCIAL DATA

The following tables set forth selected historical consolidated financial data as of, and for the periods ended on, the dates indicated. We have derived the selected consolidated statements of operations data and comprehensive loss for the years ended December 31, 2018 and 2019 and the selected consolidated balance sheet data as of December 31, 2018 and 2019 from our audited consolidated financial statements included elsewhere in this prospectus. We have derived the selected consolidated statements of operations and comprehensive loss data for the three months ended March 31, 2019 and 2020 and the selected consolidated balance sheet data as of March 31, 2020 from our unaudited condensed consolidated financial statements included elsewhere in this prospectus. Our unaudited condensed consolidated financial statements have been prepared on a basis consistent with our audited consolidated financial statements except for the adoption of ASC 842 and, in the opinion of management, reflect all adjustments, consisting only of normal recurring adjustments, necessary to fairly state our results of operations for the three months ended March 31, 2019 and 2020 and our financial position as of March 31, 2020. Our historical results are not necessarily indicative of the results that may be expected in the future. You should read the following selected consolidated financial data together with our consolidated financial statements and the related notes included elsewhere in this prospectus and the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations."

	Year Ended December 31,		Three Months Ended March 31,	
	2018	2019	2019	2020
			(unaudited)	
	(in thousands, except share and per share amounts)			
Consolidated Statements of Operations Data and Comprehensive Loss:				
Operating expenses:				
Research and development	$ 30,883	$ 60,393	$ 8,613	$ 23,414
General and administrative	9,674	18,457	6,399	4,854
Increase (decrease) in contingent consideration	1,432	6,683	(1,797)	—
Total operating expenses	41,989	85,533	13,215	28,268
Loss from operations	(41,989)	(85,533)	(13,215)	(28,268)
Other income (expense):				
Interest expense	(1,796)	(3,553)	(795)	(914)
Other income (expense), net	(821)	2,559	676	398
Net loss before income tax	(44,606)	(86,527)	(13,334)	(28,784)
Income tax benefit	202	—	—	—
Net loss	$ (44,404)	$ (86,527)	$ (13,334)	$ (28,784)
Net loss per share attributable to common stockholders, basic and diluted	$ (3.64)	$ (6.86)	$ (1.08)	$ (2.16)
Weighted-average shares of common stock outstanding, basic and diluted	12,183,979	12,618,413	12,290,621	13,322,582
Pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)(1)		$ (2.42)		$ (0.72)
Pro forma weighted-average shares of common stock outstanding, basic and diluted (unaudited)(1)		35,929,992		39,733,793
Net loss	$ (44,404)	$ (86,527)	$ (13,334)	$ (28,784)
Other comprehensive income	—	19	—	111
Comprehensive loss	$ (44,404)	$ (86,508)	$ (13,334)	$ (28,673)

(1) See Notes 2 and 15 to our annual consolidated financial statements and Notes 2 and 12 to our quarterly condensed consolidated financial statements included elsewhere in this prospectus for an explanation of the method used to calculate the historical and pro forma net loss per share of common stock, basic and diluted, and the number of shares used in the computation of the per share amounts.

	December 31, 2018	December 31, 2019	March 31, 2020 (unaudited)
		(in thousands)	
Consolidated Balance Sheet Data:			
Cash, cash equivalents and short-term investments	$ 30,395	$ 125,318	$ 103,379
Working capital(1)	19,615	105,324	68,744
Total assets	45,120	146,996	156,301
Term debt	19,086	29,140	29,227
Deferred CIRM grant liability	14,950	19,592	23,756
Warrant liability	1,591	1,271	1,251
Convertible preferred stock	72,460	222,173	222,173
Total stockholders' deficit	(76,718)	(149,511)	(176,381)

(1) We define working capital as total current assets less total current liabilities. See our consolidated financial statements included elsewhere in this prospectus for further details regarding our current assets and current liabilities.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis of our financial condition and results of operations together with the section titled "Selected Consolidated Financial Data" and our consolidated financial statements and the related notes included elsewhere in this prospectus. Some of the information contained in this discussion and analysis or set forth elsewhere in this prospectus, including information with respect to our plans and strategy for our business and related financing, includes forward-looking statements that involve risks and uncertainties. As a result of many factors, including those factors set forth in the section titled "Risk Factors," our actual results could differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis. Please also see the section titled "Special Note Regarding Forward-Looking Statements."

Overview

We are a clinical-stage biopharmaceutical company dedicated to utilizing our proprietary gene engineering platform technologies to create next generation cell and gene therapeutics with the capacity to cure. We have discovered and are developing a broad portfolio of product candidates in a variety of indications based on our core proprietary platform, including our non-viral piggyBac DNA Modification System, Cas-CLOVER site-specific gene editing system and nanoparticle- and AAV-based gene delivery technologies. Our core platform technologies have utility, either alone or in combination, across many cell and gene therapeutic modalities and enable us to engineer our wholly-owned portfolio of product candidates that are designed to overcome the primary limitations of current generation cell and gene therapeutics.

Within cell therapy, we believe our technologies allow us to create product candidates with engineered cells that engraft in the patient's body and drive lasting durable responses that may have the capacity to result in single treatment cures. Our CAR-T therapy portfolio consists of both autologous and allogeneic, or off-the-shelf, product candidates. We are advancing a broad pipeline with a plan to have six CAR-T product candidates in the clinic in 2021 in both hematological and solid tumor oncology indications. Within gene therapy, we believe our technologies have the potential to create next generation therapies that can deliver long-term, stable gene expression that does not diminish over time and that may have the capacity to result in single treatment cures. The following table summarizes our current product candidate portfolio:

We were incorporated in December 2014 and subsequently spun out from Transposagen, a company that has been developing gene engineering technologies since 2003. Since our inception, our operations have focused on organizing and staffing our company, business planning, raising capital, in-licensing and acquiring intellectual property rights and establishing and protecting our intellectual property portfolio, developing our gene engineering technologies, identifying potential product candidates and undertaking research and development and manufacturing activities, including preclinical studies and clinical trials of our product candidates, and engaging in strategic transactions. We do not have any product candidates approved for sale and have not generated any revenue from product sales. We have funded our operations primarily through the sale of equity. Since our inception, we have raised an aggregate of $334.3 million of gross proceeds from the sale of shares of our redeemable convertible preferred stock, received $30.0 million of gross proceeds from borrowings under our loan agreement and received an aggregate of $23.8 million in grant funding from the California Institute of Regenerative Medicine, or CIRM. As of March 31, 2020, we had cash, cash equivalents and short-term investments of $103.4 million. Since our inception, we have incurred significant operating losses and expect to continue to incur significant operating losses for the foreseeable future. Our net losses were $44.4 million and $86.5 million for the years ended December 31, 2018 and 2019, respectively, and $13.3 million and $28.8 million for the three months ended March 31, 2019 and 2020, respectively. As of March 31, 2020, we had an accumulated deficit of $180.9 million.

We expect our expenses and losses to increase substantially for the foreseeable future as we continue our development of, and seek regulatory approvals for, our product candidates, including P-BCMA-101, and begin to commercialize any approved products, as well as hire additional personnel, pay for accounting, audit, legal, regulatory and consulting services, and pay costs associated with maintaining compliance with Nasdaq listing rules and SEC requirements, director and officer insurance, investor and public relations activities and other expenses associated with operating as a public company. Our net losses may fluctuate significantly from quarter-to-quarter and year-to-year, depending on the timing of our clinical trials and our expenditures on other research and development activities.

In June 2020, we sold an aggregate of 10,018,300 shares of our Series D preferred stock and received gross proceeds of approximately $109.5 million. To fund future operations, we will need to raise additional capital after this offering. Based upon our current operating plan, we believe that the net proceeds from this offering, together with our existing cash, cash equivalents and short-term investments, will enable us to fund our operations through at least the next 18 months from the date of this offering. We do not expect to generate any revenues from product sales unless and until we successfully complete development and obtain regulatory approval for P-BCMA-101 or any other product candidates, which will not be for at least the next several years, if ever. If we obtain regulatory approval for any of our product candidates, we expect to incur significant commercialization expenses related to product sales, marketing, manufacturing and distribution. Accordingly, until such time, if ever, as we can generate substantial product revenue, we expect to finance our operations through equity offerings, debt financings or other capital sources, including potentially grants, collaborations, licenses or other similar arrangements. However, we may not be able to secure additional financing or enter into such other arrangements in a timely manner or on favorable terms, if at all. Especially in light of the COVID-19 pandemic, we can give no assurances that we will be able to secure such additional sources of funds to support our operations, or, if such funds are available to us, that such additional financing will be sufficient to meet our needs. Our failure to raise capital or enter into such other arrangements when needed would have a negative impact on our financial condition and could force us to delay, reduce or terminate our research and development programs or other operations, or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

The manufacturing process for our allogeneic product candidates is nearly identical to the process for our autologous product candidates, except for the gene editing and related steps. We work with a number of third-party contract manufacturers for production of our product candidates. We also work with a variety of suppliers to provide our manufacturing raw materials including media, DNA and RNA components. We have initiated construction of an internal pilot GMP manufacturing facility in San Diego adjacent to our headquarters to develop and manufacture preclinical materials and clinical supplies of our product candidates for Phase 1 and

Phase 2 clinical trials in the future. We expect to commence operations in this facility in the second half of 2020. We expect that we will continue to rely on third parties for various manufacturing needs even after this facility is operational. In the future, we may also build one or more commercial manufacturing facilities for any approved product candidates.

License Agreements

Below is a summary of the key terms for certain of our license agreements. For a more detailed description of these and our other license agreements, see the section titled "Business—License Agreements" and Note 12 to our annual consolidated financial statements included elsewhere in this prospectus.

License Agreement with Janssen Biotech Inc.

On August 3, 2015, we entered into a license agreement with Janssen, or the Janssen Agreement, pursuant to which we obtained exclusive worldwide rights to research, develop, manufacture and commercialize pharmaceutical products comprising autologous CAR-modified T-cells or any CAR-modified natural killer or CAR-modified natural-killer-like cells expressing certain Centyrin molecules CAR-modified for the treatment or prevention of any disease in humans. This is the binding technology we use in our P-BCMA-101 and P-PSMA-101 product candidates. Under the Janssen Agreement, we also have the right to screen Janssen's Centyrin library for agents that bind or modify targets of interest for our internal research and development purposes for potential use in a licensed product.

Pursuant to the Janssen Agreement, we paid Janssen an upfront fee of $0.2 million. As of March 31, 2020, we have paid approximately $3.3 million in milestone development fees relating to P-BCMA-101 and approximately $0.7 million in milestone development fees relating to P-PSMA-101. We are required to pay Janssen up to an aggregate of $75.8 million upon the achievement of certain clinical, regulatory and sales milestones for the first licensed product and up to an aggregate of $46.8 million upon the achievement of certain clinical, regulatory and sales milestones for each licensed product thereafter. We are also obligated to pay, on a product-by-product and country-by-country basis, royalties in the low single-digit percentage range on annual net sales, with the royalty rates varying depending on if there is a valid claim present within the licensed patent rights covering the licensed product in the applicable country in which the net sales occur. The royalty rates are subject to reduction upon certain events.

April 2017 Commercial License Agreement with TeneoBio, Inc.

On April 27, 2017, we entered into a commercial license agreement with TeneoBio, or the 2017 TeneoBio Agreement, pursuant to which we obtained exclusive worldwide rights to use and develop pharmaceutical products comprising allogeneic T-cells expressing a CAR molecule containing certain heavy chain sequences provided by TeneoBio for the treatment of human disease. We use this heavy-chain-only binder in our P-BCMA-ALLO1 product candidate.

Pursuant to the 2017 TeneoBio Agreement, we have paid TeneoBio $0.5 million through our selection of the antibodies licensed under the 2017 TeneoBio Agreement. We are required to pay TeneoBio up to an aggregate of $20.5 million upon the first achievement of certain clinical and regulatory milestones for any allogeneic product and up to an aggregate of $20.5 million upon the first achievement of certain clinical and regulatory milestones for any autologous product. We are also obligated to pay, on a product-by-product and country-by-country basis, a royalty in the low single-digit percentage on net sales of any licensed products.

August 2018 Commercial License Agreement with TeneoBio, Inc.

On August 3, 2018, we entered into a commercial license agreement, or the 2018 TeneoBio Agreement, with TeneoBio for the development and use of TeneoBio's human heavy-chain-only antibodies in CAR-T cell therapies. Under the terms of the 2018 TeneoBio Agreement, we have the option to obtain exclusive rights to research, develop and commercialize up to a certain number of targets from TeneoBio.

Pursuant to the 2018 TeneoBio Agreement, we paid TeneoBio an upfront fee of $4.0 million. We are required to pay additional fees in the low- to mid-six figure dollar range upon (1) selecting exclusivity for a particular target, which restricts TeneoBio from licensing that particular target to a third party for a period of time, (2) continuing exclusivity for any selected target on each anniversary thereafter and (3) exercising our commercial option for each target. We are required to pay TeneoBio up to an aggregate of $31.0 million upon the first achievement of certain clinical and regulatory milestones for each licensed product. We are also obligated to pay, on a product-by-product and country-by-country basis, a low single-digit percentage royalty on net sales of any licensed products. The royalty rate is subject to reduction upon certain events.

October 2019 License Agreement with Genus Oncology, LLC

On October 24, 2019, we entered into a license agreement with Genus, or the Genus Agreement. Pursuant to the Genus Agreement, we paid Genus an upfront fee of $1.5 million and Genus granted us the option, which was exercised in April 2020 for an additional $1.5 million fee, to obtain an exclusive worldwide license under certain patents and a non-exclusive worldwide license under certain know-how controlled by Genus to research, develop and commercialize pharmaceutical products incorporating CAR cells expressing antibodies and derivatives thereof targeting MUC1, or a Genus licensed product, and a non-exclusive worldwide license under certain patents and know-how controlled by Genus to research, develop and commercialize companion diagnostics for the treatment, prevention and palliation of human diseases and conditions. We may use a Genus antibody or derivative thereof targeting MUC1 as a binder in our P-MUC1C-ALLO1 product candidate.

Pursuant to the Genus Agreement, we are also required to pay Genus up to an aggregate of $71.0 million upon first achievement of certain clinical, regulatory and sales milestones for any Genus licensed product and companion diagnostics. We are also obligated to pay, on a product-by-product and country-by-country basis, tiered royalties in the low to mid-single-digit percentage on net sales of any Genus licensed products and related companion diagnostics. The royalty rate is subject to reduction upon certain events.

Acquisition of Vindico

On October 10, 2016, we completed the acquisition of all the outstanding ownership interests in Vindico NanoBiotechnology, Inc., or Vindico, a company with expertise in polymer-based nanoparticle technology for delivery of, for example, gene therapy technologies. We paid $1.1 million in cash and issued an aggregate of 350,522 shares of common stock to the selling shareholders. The common stock was valued at $0.7 million based on the fair value of our common stock at October 10, 2016 or $1.88 per share. We paid additional cash consideration of $0.6 million in 2017.

In connection with the Vindico acquisition, we agreed to pay additional purchase consideration, based on the achievement of a certain developmental milestone using the acquired technology by October 2018, payable in shares of our common stock. In July 2018, we amended the terms of the Vindico merger agreement, which included an extension of contingency period through July 2019, the calculation to determine the number of shares to be settled and an option to settle the contingency in cash under certain circumstances. In July 2019, the developmental milestone was met and pursuant to the terms of the agreement, we subsequently issued 866,125 shares of common stock, valued at $10.6 million to the former Vindico shareholders in August 2019. There is no further consideration due related to the Vindico acquisition.

CIRM Grant Funding

In December 2017, we were granted an award in the amount of $19.8 million from CIRM to support our clinical trial for P-BCMA-101. The terms of the award include an option to repay the grant or convert it to a royalty obligation upon commercialization of the program. Based upon the terms of the agreement, we will record proceeds as a liability when received. As of March 31, 2020, proceeds received from the grant totaled $19.7 million. We may receive up to $0.1 million in future milestone payments.

In September 2018, we were granted an additional award in the amount of $4.0 million from CIRM to support our preclinical studies for P-PSMA-101. As of March 31, 2020, all $4.0 million had been received and no additional future payments were remaining.

Components of Our Results of Operations

Operating Expenses

Research and Development

Research and development expenses consist primarily of external and internal costs incurred for our research and development activities, including development of our platform technologies, our drug discovery efforts and the development of our product candidates.

External costs include:

- expenses incurred in connection with the preclinical and clinical development of our product candidates and research programs, including under agreements with third parties, such as consultants, contractors and contract research organizations;
- the cost of developing and scaling our manufacturing process and manufacturing drug products for use in our preclinical studies and clinical trials, including under agreements with third parties, such as consultants, contractors and contract manufacturing organizations, or CMOs;
- payments made under third-party licensing agreements; and
- laboratory supplies and research materials.

Internal costs include:

- personnel-related expenses, consisting of employee salaries, related benefits and stock-based compensation expense for employees engaged in research and development functions;
- facilities, depreciation and other expenses, consisting of direct and allocated expenses for rent and maintenance of facilities and insurance; and
- any impairment of indefinite-lived in process research and development, or IPR&D, related assets.

We expense research and development costs as incurred. External expenses are recognized based on an evaluation of the progress to completion of specific tasks using information provided to us by our service providers or our estimate of the level of service that has been performed at each reporting date. Upfront payments and milestone payments made for the licensing of technology are expensed as research and development in the period in which they are incurred. Advance payments that we make for goods or services to be received in the future for use in research and development activities are recorded as prepaid expenses or other long-term assets. These amounts are expensed as the related goods are delivered or the services are performed.

At any one time, we are working on multiple research programs. We track external costs by the stage of program, clinical or preclinical. Our internal resources, employees and infrastructure are not directly tied to any one program and are typically deployed across multiple programs. As such, we do not track internal costs on a specific program basis.

Product candidates in later stages of clinical development generally have higher development costs than those in earlier stages of clinical development, primarily due to CRO activity and manufacturing expenses. We expect that our research and development expenses will increase substantially in connection with our planned preclinical and clinical development activities in the near term and in the future, including in connection with our ongoing Phase 1 exploratory trial and Phase 2 trial of P-BCMA-101 for the treatment of patients with relapsed/refractory multiple myeloma and Phase 1 trial of P-PSMA-101 for the treatment of patients with mCRPC. At this time, we cannot accurately estimate or know the nature, timing and costs of the efforts that will be necessary to complete the preclinical and clinical development of any of our product candidates. Our development costs may vary significantly based on factors such as:

- the number and scope of preclinical and IND-enabling studies;
- per patient trial costs;
- the number of trials required for approval;
- the number of sites included in the trials;
- the countries in which the trials are conducted;
- the length of time required to enroll eligible patients;
- the number of patients that participate in the trials;
- the drop-out or discontinuation rates of patients;
- potential additional safety monitoring requested by regulatory agencies;
- the duration of patient participation in the trials and follow-up;
- the cost and timing of manufacturing our product candidates;
- the phase of development of our product candidates;
- the efficacy and safety profile of our product candidates;
- the extent to which we establish additional licensing agreements; and
- whether we choose to partner any of our product candidates and the terms of such partnership.

A change in the outcome of any of these variables with respect to the development of any of our product candidates could significantly change the costs and timing associated with the development of that product candidate. We may never succeed in obtaining regulatory approval for any of our product candidates. We may obtain unexpected results from our clinical trials and preclinical studies.

General and Administrative

General and administrative expenses consist primarily of salaries and related costs, including stock-based compensation, for personnel in executive, finance and administrative functions. General and administrative expenses also include direct and allocated facility-related costs as well as professional fees for legal, patent, consulting, investor and public relations, accounting and audit services. We anticipate that our general and administrative expenses will increase in the future as we increase our headcount to support our continued research activities and development of our product candidates, including P-BCMA-101, and begin to

commercialize any approved products. We also anticipate that our general and administrative expenses will increase as a result of payments for accounting, audit, legal, regulatory and consulting services, as well as costs associated with maintaining compliance with Nasdaq listing rules and SEC requirements, director and officer insurance, investor and public relations activities and other expenses associated with operating as a public company.

Increase (Decrease) in Contingent Consideration

In connection with our acquisition of Vindico in October 2016, we agreed to pay additional consideration based on the achievement of a certain developmental milestone using the acquired technology. The additional purchase consideration was payable in shares of our common stock. The number of shares of common stock issuable and the associated fair value could vary depending on (1) the price paid by investors in a qualified equity financing prior to the achievement of the milestone and (2) when and if the milestone is reached. We classified this contingent consideration as a liability on our consolidated balance sheets that was remeasured to fair value at each reporting date, and we recognized changes in the fair value of the contingent consideration liability as a component of operating expenses in our consolidated statements of operations and comprehensive loss. We recognized changes in the fair value of the contingent consideration liability until the milestone was met in July 2019. Upon issuance of the common stock related to the milestone in July 2019, the liability was reclassified to stockholder's deficit, within additional paid-in capital. For additional detail, see the subsections titled "—Acquisition of Vindico" above and "—Critical Accounting Policies and Significant Judgments and Estimates—Valuation of Contingent Consideration" below, and Note 4 to our annual consolidated financial statements included elsewhere in this prospectus.

Other Income (Expense)

Interest Expense

Interest expense consists of (1) interest expense on outstanding borrowings under our loan agreement and (2) amortization of debt discount and debt issuance costs.

Other Income (Expense), Net

Other income (expense), net consists of (1) interest income and (2) miscellaneous income and expense unrelated to our core operations.

Interest income is comprised of interest earned on our invested cash balances in short-term investments. We expect our interest income to increase as we invest the cash received from the net proceeds from this offering.

Miscellaneous income and expense unrelated to our core operations is comprised of changes in fair value of warrant liability. We issued warrants to purchase shares of our Series A-1 preferred stock in connection with our loan agreement in July 2017. We issued additional warrants to purchase shares of our Series B preferred stock in connection with the amendment of our loan agreement in August 2018 and in February 2019. We classify these warrants as a liability on our consolidated balance sheets that we remeasure to fair value at each reporting date, and we recognize changes in the fair value of the warrant liability as a component of other income (expense), net in our consolidated statements of operations and comprehensive loss. We will continue to recognize changes in the fair value of the warrant liability until the warrants are exercised, expire or qualify for equity classification. Upon the closing of this offering, the preferred stock warrants will become exercisable for common stock instead of preferred stock and the fair value of the warrant liability at that time will be reclassified to additional paid-in-capital. For additional detail, see the subsection titled "—Critical Accounting Policies and Significant Judgments and Estimates—Valuation of Warrants to Purchase Preferred Stock" below and Note 7 to our annual and quarterly consolidated financial statements included elsewhere in this prospectus.

Results of Operations

Comparison of the Three Months Ended March 31, 2019 and 2020

The following table summarizes our results of operations for the three months ended March 31, 2019 and 2020 (in thousands):

	Three Months Ended March 31,		
	2019	2020	Change
Operating expenses:			
Research and development	$ 8,613	$ 23,414	$ 14,801
General and administrative	6,399	4,854	(1,545)
Decrease in contingent consideration	(1,797)	—	1,797
Total operating expenses	13,215	28,268	15,053
Loss from operations	(13,215)	(28,268)	(15,053)
Other income (expense):			
Interest expense	(795)	(914)	(119)
Other income (expense), net	676	398	(278)
Net loss before income tax	(13,334)	(28,784)	(15,450)
Income tax benefit	—	—	—
Net loss	$(13,334)	$(28,784)	$(15,450)

Research and Development Expenses

The following table summarizes our research and development expenses for the three months ended March 31, 2019 and 2020 (in thousands):

	Three Months Ended March 31,		
	2019	2020	Change
External costs:			
Clinical stage programs(1)	$4,282	$ 8,902	$ 4,620
Preclinical stage programs and other unallocated expenses	1,487	5,743	4,256
Internal costs:			
Personnel	2,630	6,890	4,260
Facilities and other	214	1,879	1,665
Total research and development expenses	$8,613	$ 23,414	$ 14,801

(1) Clinical stage programs include costs related to P-BCMA-101 for the three months ending March 31, 2019 and costs related to P-BCMA-101 and P-PSMA-101 for the three months ending March 31, 2020.

Research and development expenses were $8.6 million for the three months ended March 31, 2019, compared to $23.4 million for the three months ended March 31, 2020. This increase in research and development expenses of $14.8 million was primarily due to increases in the following: $4.6 million of external costs related to our clinical stage programs including the ongoing enrollment and manufacturing for the P-BCMA-101 Phase 1 and Phase 2 clinical trial and initiation of the Phase 1 P-PSMA-101 trial, $4.3 million of personnel expenses related to increased headcount, and $4.3 million of external costs related to our preclinical programs.

General and Administrative Expenses

General and administrative expenses were $6.4 million for the three months ended March 31, 2019, compared to $4.9 million for the three months ended March 31, 2020. This decrease in general and administrative expenses of $1.5 million was primarily due to decreases in the following: $1.5 million of facility expense related to lease termination costs incurred in 2019 and $1.2 million of deferred financing costs written off in 2019, offset in part by an increase of $1.5 million of personnel expenses related to increased headcount.

Decrease in Contingent Consideration

Decrease in contingent consideration was $1.8 million for the three months ended March 31, 2019, compared to $0 for the three months ended March 31, 2020. This change in decrease in contingent consideration of $1.8 million was due to a decrease in our contingent consideration liability resulting from a change in certain fair value assumptions, including a decrease in the number of expected shares to be issued upon settlement as a result of the Series C redeemable convertible preferred stock financing and a decrease in the estimated fair value of the shares of common stock to be issued. We recognized changes in the fair value of the contingent consideration liability until the applicable milestone was met in July 2019. Upon issuance of the common stock related to the milestone in July 2019, the liability was reclassified to stockholder's deficit, within additional paid-in capital.

Interest Expense

Interest expense was $0.8 million for the three months ended March 31, 2019, compared to $0.9 million for the three months ended March 31, 2020. This increase in interest expense of $0.1 million was due to an increase in average outstanding principal under our loan agreement during the three months ended March 31, 2020.

Other Income (Expense), Net

Other income was $0.7 million for the three months ended March 31, 2019, compared to $0.4 million for the three months ended March 31, 2020. This decrease in other income (expense), net of $0.3 million was primarily due to a $0.5 million decrease in warrant liability and $0.1 million of interest income during the three months ended March 31, 2019, compared to $0.4 million of interest income during the three months ended March 31, 2020. This change in warrant liability was driven by the change in the estimated fair value of the preferred stock underlying the warrants.

Comparison of the Years Ended December 31, 2018 and 2019

The following table summarizes our results of operations for the years ended December 31, 2018 and 2019 (in thousands):

	Year Ended December 31,		
	2018	2019	Change
Operating expenses:			
Research and development	$ 30,883	$ 60,393	$ 29,510
General and administrative	9,674	18,457	8,783
Increase in contingent consideration	1,432	6,683	5,251
Total operating expenses	41,989	85,533	43,544
Loss from operations	(41,989)	(85,533)	(43,544)
Other income (expense):			
Interest expense	(1,796)	(3,553)	(1,757)
Other income (expense), net	(821)	2,559	3,380
Net loss before income tax	(44,606)	(86,527)	(41,921)
Income tax benefit	202	—	(202)
Net loss	$ (44,404)	$ (86,527)	$ (42,123)

Research and Development Expenses

The following table summarizes our research and development expenses for the years ended December 31, 2018 and 2019 (in thousands):

	Year Ended December 31,		
	2018	2019	Change
External costs:			
Clinical stage programs[1]	$ 14,700	$ 27,441	$12,741
Preclinical stage programs and other unallocated expenses	7,231	14,819	7,588
Internal costs:			
Personnel	6,598	15,417	8,819
Facilities and other	1,294	2,716	1,422
Impairment of IPR&D	1,060	—	(1,060)
Total research and development expenses	$ 30,883	$ 60,393	$29,510

(1) Clinical stage programs include costs related to P-BCMA-101 for the years ending December 31, 2018 and 2019.

Research and development expenses were $30.9 million for the year ended December 31, 2018, compared to $60.4 million for the year ended December 31, 2019. This increase in research and development expenses of $29.5 million was primarily due to increases in the following: $12.7 million of external costs related to our clinical stage programs including the ongoing enrollment and manufacturing for the P-BCMA-101 Phase 1 and Phase 2 clinical trial, $8.8 million of personnel expenses related to increased headcount, and $7.6 million of external costs related to our preclinical programs.

General and Administrative Expenses

General and administrative expenses were $9.7 million for the year ended December 31, 2018, compared to $18.5 million for the year ended December 31, 2019. This increase in general and administrative expenses of $8.8 million was primarily due to increases in the following: $3.4 million of personnel expenses

related to increased headcount, $3.4 million of facility and overhead expenses as a result of higher rent and utilities, and $1.8 million of legal and professional fees related to an increase in legal and patent costs related to our ongoing business activities and preparations to operate as a public company.

Increase in Contingent Consideration

Increase in contingent consideration was $1.4 million for the year ended December 31, 2018, compared to $6.7 million for the year ended December 31, 2019. This change in increase in contingent consideration of $5.3 million was due to an increase in our contingent consideration liability resulting from a change in certain fair value assumptions, including an increase of the probability of success upon achievement of the developmental milestone, offset in part by a decrease in the estimated fair value of the shares of common stock to be issued.

Interest Expense

Interest expense was $1.8 million for the year ended December 31, 2018, compared to $3.6 million for the year ended December 31, 2019. This increase in interest expense of $1.8 million was due to an increase in outstanding principal under our loan agreement during the year ended December 31, 2019.

Other Income (Expense), Net

Other expense was $0.8 million for the year ended December 31, 2018, compared to other income of $2.6 million for the year ended December 31, 2019. This increase in other income (expense), net of $3.4 million was due to a $1.6 million increase in interest income due to higher cash, cash equivalent and short-term investment balances from proceeds of the Series C redeemable convertible preferred stock financing in 2019 and a decrease in warrant liability of $0.5 million in 2019, compared to an increase in warrant liability of $1.2 million in 2018, resulting in a net change of $1.7 million. This change in warrant liability was driven by the change in the estimated fair value of the preferred stock underlying the warrants.

Liquidity and Capital Resources

We were incorporated in December 2014 and subsequently spun out from Transposagen, a company that has been developing gene engineering technologies since 2003. Since our inception in 2014, we have incurred significant operating losses. Our net losses were $44.4 million and $86.5 million for the years ended December 31, 2018 and 2019, respectively, and $13.3 million and $28.8 million for the three months ended March 31, 2019 and 2020, respectively. As of March 31, 2020, we had an accumulated deficit of $180.9 million. Our operations have focused on organizing and staffing our company, business planning, raising capital, in-licensing and acquiring intellectual property rights and establishing and protecting our intellectual property portfolio, developing our gene engineering technologies, identifying potential product candidates and undertaking research and development and manufacturing activities, including preclinical studies and clinical trials of our product candidates, and engaging in strategic transactions. Our primary use of cash is to fund operating expenses, which consist primarily of research and development expenditures, and to a lesser extent, general and administrative expenditures. Cash used to fund operating expenses is impacted by the timing of when we pay these expenses, as reflected in the change in our outstanding accounts payable and accrued expenses. We have not yet commercialized any of our product candidates and we do not expect to generate revenue from sales of any product candidates for several years, if at all. We have funded our operations primarily through the sale of equity. Since our inception, we have raised an aggregate of $334.3 million of gross proceeds from the sale of shares of our redeemable convertible preferred stock, received $30.0 million of gross proceeds from borrowings under our loan agreement and received an aggregate of $23.8 million in grant funding from CIRM. As of March 31, 2020, we had cash, cash equivalents and short-term investments of $103.4 million.

Loan Agreement

In July 2017, we entered into a loan and security agreement, or 2017 Loan Agreement, with Oxford. Under the original terms, the facility provided $15.0 million, of which we drew $10.0 million. In August 2018, we entered into an amended and restated agreement with Oxford, or the 2018 Loan Agreement, to, among other things, increase the size of the facility to $30.0 million, modify the interest rate and extend the interest-only payment period and the maturity date. In addition, we concurrently increased the outstanding principal by $10.0 million.

As of August 2018, outstanding borrowings under the 2018 Loan Agreement consisted of a Term A loan, in the amount of $20.0 million, which bears interest at a floating per annum rate equal to (1) 6.96% plus (2) the greater of (a) the 30 day U.S. Dollar LIBOR rate reported in The Wall Street Journal on the last business day of the month that immediately precedes the month in which the interest will accrue and (b) 0.99%. As of March 31, 2020, the interest rate applicable to Term A loan borrowings under the 2018 Loan Agreement was 8.7%.

In February 2019, we drew the remaining available balance under the 2018 Loan Agreement, or Term B loan, in the amount of $10.0 million, which bears interest at a floating per annum rate equal to (1) 6.94% plus (2) the greater of (a) the 30 day U.S. Dollar LIBOR rate reported in The Wall Street Journal on the last business day of the month that immediately precedes the month in which the interest will accrue and (b) 2.00%. As of March 31, 2020, the interest rate applicable to Term B loan borrowings under the 2018 Loan Agreement was 8.94%.

Interest only payments for the 2018 Loan Agreement were extended through October 2020, with a maturity date of March 2023. We will be required to make a final payment of 7.5% of the principal balance outstanding, payable on the earlier of (1) the maturity date, (2) acceleration of any term loan or (3) the prepayment of the term loans.

In June 2020, we entered into a fourth amendment to the 2018 Loan Agreement with Oxford to extend the interest-only payment period and maturity date. All outstanding Term Loans will now mature on June 1, 2024 and will have interest-only payments through January 1, 2022, followed by 30 equal monthly payments of principal and unpaid accrued interest. In addition, in conjunction with the entry into the fourth amendment, we paid Oxford a facility fee of $0.3 million. Our obligations under the 2018 Loan Agreement are secured by a first priority security interest in substantially all of our current and future assets, other than our intellectual property. In addition, have also agreed not to encumber our intellectual property assets, except as permitted by the 2018 Loan Agreement. While any amounts are outstanding under the 2018 Loan Agreement, we are subject to a number of affirmative and restrictive covenants, including covenants regarding dispositions of property, business combinations or acquisitions, among other customary covenants. We are also restricted from paying dividends or making other distributions or annual payments on our capital stock in excess of $250,000, subject to limited exceptions. In July 2017, the U.K.'s Financial Conduct Authority, which regulates the London Interbank Offered Rate, or LIBOR, announced that it intends to phase out LIBOR by the end of 2021. Various central bank committees and working groups continue to discuss replacement of benchmark rates, the process for amending existing LIBOR-based contracts, and the potential economic impacts of different alternatives. The Alternative Reference Rates Committee has identified the Secured Overnight Financing Rate, or SOFR, as its preferred alternative rate for USD LIBOR. SOFR is a measure of the cost of borrowing cash overnight, collateralized by U.S. Treasury securities, and is based on directly observable U.S. Treasury-backed repurchase transactions.

We are evaluating the potential impact of the replacement of the LIBOR benchmark interest rate including risk management, internal operational readiness and monitoring the Financial Accounting Standards Board standard-setting process to address financial reporting issues that might arise in connection with transition from LIBOR to a new benchmark rate.

Cash Flows

The following table sets forth the primary sources and uses of cash and cash equivalents for the years ended December 31, 2018 and 2019 and the three months ended March 31, 2019 and 2020 (in thousands):

	Year Ended December 31,		Three Months Ended March 31,	
	2018	2019	2019	2020
			(unaudited)	
Cash used in operating activities	$(38,014)	$ (64,390)	$(14,663)	$(22,885)
Cash used in investing activities	(1,284)	(42,592)	(266)	(5,973)
Cash provided by financing activities	54,068	164,371	95,919	4,346
Net increase (decrease) in cash and cash equivalents	$ 14,770	$ 57,389	$ 80,990	$(24,512)

During the three months ended March 31, 2019, operating activities used $14.7 million of cash, primarily resulting from our net loss of $13.3 million, further increased by non-cash gains of $0.9 million. Non-cash charges consisted primarily of a $1.8 million decrease in contingent consideration and a $0.5 million decrease in warrant liability, offset in part by writing off $0.6 million in deferred financing costs and $0.5 million of stock-based compensation.

During the three months ended March 31, 2020, operating activities used $22.9 million of cash, primarily resulting from our net loss of $28.8 million, offset in part by non-cash charges of $2.2 million. Non-cash charges consisted primarily of $1.5 million of stock-based compensation and $0.4 million of depreciation and amortization. Net cash provided by changes in our operating assets and liabilities for the three months ended March 31, 2020 consisted primarily of a $4.6 million increase in accrued liabilities, offset by an increase in prepaid and other assets of $0.8 million.

During the year ended December 31, 2018, operating activities used $38.0 million of cash, primarily resulting from our net loss of $44.4 million, offset in part by non-cash charges of $5.7 million. Non-cash charges consisted primarily of a $1.4 million increase in contingent consideration, a $1.2 million increase in warrant liability, a $1.1 million impairment of IPR&D and $0.7 million of depreciation and amortization.

During the year ended December 31, 2019, operating activities used $64.4 million of cash, primarily resulting from our net loss of $86.5 million, offset in part by non-cash charges of $12.7 million. Non-cash charges consisted primarily of a $6.7 million increase in contingent consideration, $3.1 million of stock-based compensation and $1.2 million of depreciation and amortization. Net cash provided by changes in our operating assets and liabilities for the year ended December 31, 2019 consisted primarily of a $8.7 million increase in accounts payable and accrued liabilities.

Cash Used in Investing Activities

During the three months ended March 31, 2019, net cash used in investing activities was $0.3 million, consisting of property and equipment purchases.

During the three months ended March 31, 2020, net cash used in investing activities was $6.0 million, primarily due to the purchase of $20.0 million of short-term investments and $3.5 million of property and equipment purchases, offset in part by $17.5 million of proceeds from the maturities of available-for-sale short-term investments. The purchase of short-term investments reflects the use of a higher cash balance from the proceeds of the Series C redeemable convertible preferred stock financing.

During the year ended December 31, 2018, net cash used in investing activities was $1.3 million, consisting of property and equipment purchases.

During the year ended December 31, 2019, net cash used in investing activities was $42.6 million, primarily due to the purchase of $71.4 million of short-term investments and $5.2 million of property and equipment purchases, offset in part by $34.0 million of proceeds from the maturities of available-for-sale short-term investments. The purchase of short-term investments reflects the use of a higher cash balance from the proceeds of the Series C redeemable convertible preferred stock financing.

The purchase of property and equipment for all periods related to equipment purchases as we expanded our research and development and manufacturing activities, in addition to corporate office space.

Cash Provided by Financing Activities

During the three months ended March 31, 2019, net cash provided by financings activities was $95.9 million, consisting primarily of $86.0 million in net proceeds from the sale of preferred stock and $9.9 million of net proceeds from borrowings under our 2018 Loan Agreement.

During the three months ended March 31, 2020, net cash provided by financings activities was $4.3 million, consisting primarily of $4.2 million in grant payments from CIRM and $0.2 million in proceeds from the exercise of stock options.

During the year ended December 31, 2018, net cash provided by financings activities was $54.1 million, consisting primarily of $30.3 million in net proceeds from the sale of preferred stock, $15.0 million in grant payments from CIRM and $9.4 million of net proceeds from borrowings under our 2018 Loan Agreement.

During the year ended December 31, 2019, net cash provided by financings activities was $164.4 million, consisting primarily of $149.7 million in net proceeds from the sale of preferred stock, $9.9 million of net proceeds from borrowings under our 2018 Loan Agreement and $4.6 million in grant payments from CIRM.

Funding Requirements

We expect our expenses to increase substantially in connection with our ongoing activities, particularly as we conduct preclinical studies and clinical trials for our product candidates. In addition, upon the closing of this offering, we expect to incur additional costs associated with operating as a public company. The timing and amount of our operating and capital expenditures will depend largely on many factors, including:

- scope, progress and results of our ongoing and planned preclinical studies and clinical trials for our product candidates;
- unanticipated serious safety concerns related to the use of our product candidates;
- timing of licensing payments we may be required to make based on the development of our product candidates;
- the number of and development requirements of other product candidates that we may pursue;
- the timing and outcome of regulatory review of our product candidates;
- changes in laws or regulations applicable to our product candidates, including but not limited to clinical trial requirements for approval;

- our decisions to initiate additional clinical trials, not to initiate any clinical trial or to terminate an existing clinical trial;
- the cost of obtaining raw materials and drug product for clinical trials and commercial supply;
- whether we decide to partner any of our product candidates with any third parties and the terms of any such partnership or collaboration;
- the cost and timing of establishing and validating our pilot manufacturing facility;
- whether we decide to establish a commercial manufacturing facility for supply of our product candidates; and
- additions or departures of key scientific or management personnel.

Our consolidated financial statements included elsewhere in this prospectus have been prepared on a basis which assumes we are a going concern and does not include any adjustments to reflect the possible future effects on the recoverability and classification of assets or the amounts and classifications of liabilities that may result from any uncertainty related to our ability to continue as a going concern. As described in Note 1 to our annual and quarterly consolidated financial statements, management has prepared cash flow forecasts which indicate that based on our expected operating losses and negative cash flows, there is substantial doubt about our ability to continue as a going concern. Our ability to continue as a going concern is dependent upon a number of factors, including our ability to obtain the necessary financing to meet our obligations and repay our liabilities arising from obligations that become due in the ordinary course of business. Our ability to continue as a going concern may be viewed unfavorably by current and prospective investors, as well as by analysts and creditors. This may in turn make it more difficult for us to raise the additional financing necessary to continue to operate our business and we may be forced to significantly alter our business strategy, substantially curtail our current operations, or cease operations altogether. However, based upon our current operating plan, we believe that the net proceeds from this offering, together with our existing cash, cash equivalents and short-term investments, will enable us to fund our operations through at least the next 18 months from the date of this offering. We have based this estimate on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we expect.

Until such time, if ever, as we can generate substantial product revenue, we expect to finance our operations through equity offerings, debt financings or other capital sources, including potentially grants, collaborations, licenses or other similar arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a common stockholder. Debt financing and preferred equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making acquisitions or capital expenditures or declaring dividends. If we raise additional funds through collaborations, strategic alliances or marketing, distribution or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or drug candidates, or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings or other arrangements when needed, we may be required to delay, limit, reduce or terminate our research, product development or future commercialization efforts, or grant rights to develop and market drug candidates that we would otherwise prefer to develop and market ourselves.

Contractual Obligations and Commitments

The following table summarizes our contractual obligations and commitments as of December 31, 2019 (in thousands):

	Payments Due by Period				
	Total	Less than 1 Year	1 to 3 Years	4 to 5 Years	More than 5 Years
Operating lease commitments(1)	$44,395	$ 2,662	$ 8,213	$ 8,882	$ 24,638
Debt obligations(2)	37,745	5,673	26,777	5,295	—
Total	$82,140	$ 8,335	$ 34,990	$ 14,177	$ 24,638

(1) Amounts in table reflect payments due for our two leases of office and laboratory and pilot manufacturing space in San Diego, California under two operating lease agreements that expire in December 2029.

(2) Amounts in table reflect the contractually required principal, final payment and interest payments payable under the 2018 Loan Agreement, which does not take into account the fourth amendment to the 2018 Loan Agreement entered into in June 2020. For purposes of this table, interest due under the 2018 Loan Agreement was calculated using an assumed interest rate of 8.84% per annum, which as the interest rate in effect as of December 31, 2019.

We enter into contracts in the normal course of business with contract research organizations, CMOs and other third parties for preclinical research studies, clinical trials and testing and manufacturing services. These contracts do not contain minimum purchase commitments and are cancelable by us upon prior written notice. Payments due upon cancellation consist of payments for services provided or expenses incurred, including noncancelable obligations of our service providers, up to one year after the date of cancellation. These payments are not included in the table above as the amount and timing of such payments are not known.

We have also entered into a several license agreements under which we are obligated to make aggregate milestone payments upon the achievement of specified preclinical, clinical and regulatory milestones as well as royalty payments. We have not included future payments under this agreement in the table above since the payment obligations under this agreement are contingent upon future events, such as our achievement of specified milestones or generating product sales. As of March 31, 2020, we were unable to estimate the timing or likelihood of achieving these milestones or generating future product sales. See the subsection titled “—License Agreements” above.

Critical Accounting Policies and Significant Judgments and Estimates

Our consolidated financial statements are prepared in accordance with generally accepted accounting principles in the United States, or GAAP. The preparation of our consolidated financial statements and related disclosures requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue, costs and expenses and the disclosure of contingent assets and liabilities in our consolidated financial statements. We base our estimates on historical experience, known trends and events and various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. We evaluate our estimates and assumptions on an ongoing basis. Our actual results may differ from these estimates under different assumptions or conditions.

While our significant accounting policies are described in more detail in Note 2 to our annual and quarterly consolidated financial statements included elsewhere in this prospectus, we believe that the following accounting policies are those most critical to the judgments and estimates used in the preparation of our consolidated financial statements.

Accrued Research and Development Expenses

As part of the process of preparing our consolidated financial statements, we are required to estimate our accrued research and development expenses. This process involves reviewing open contracts and purchase

orders, communicating with our applicable personnel to identify services that have been performed on our behalf and estimating the level of service performed and the associated cost incurred for the service when we have not yet been invoiced or otherwise notified of actual costs. The majority of our service providers invoice us in arrears for services, however, some require advance payments. We make estimates of our accrued expenses as of each balance sheet date in our consolidated financial statements based on facts and circumstances known to us at that time. We periodically confirm the accuracy of the estimates with the service providers and make adjustments if necessary. Examples of estimated accrued research and development expenses include fees paid to vendors in connection with preclinical development activities, CMOs in connection with the process development and scale-up activities and the production of clinical trial materials and contract research organizations in connection with clinical trials.

We base the expense recorded related to contract research and manufacturing on our estimates of the services received and efforts expended pursuant to quotes and contracts with multiple CMOs and contract research organizations that supply materials and conduct services. The financial terms of these agreements are subject to negotiation, vary from contract to contract and may result in uneven payment flows. There may be instances in which payments made to our vendors will exceed the level of services provided and result in a prepayment of the expense. In accruing service fees, we estimate the time period over which services will be performed and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of effort varies from the estimate, we adjust the accrual or prepaid expense accordingly. Although we do not expect our estimates to be materially different from amounts actually incurred, our understanding of the status and timing of services performed relative to the actual status and timing of services performed may vary and may result in reporting amounts that are too high or too low in any particular period. To date, there have not been any material adjustments to our prior estimates of accrued research and development expenses.

Stock-Based Compensation

We measure stock-based awards granted to employees, non-employees and directors based on their fair value on the date of the grant using the Black-Scholes option-pricing model for options. Compensation expense for those awards is recognized over the requisite service period, which is generally the vesting period of the respective award. We use the straight-line method to record the expense of awards with service-based vesting conditions. Forfeitures are recognized as they occur.

The Black-Scholes option-pricing model requires the use of subjective assumptions to determine the fair value of stock-based awards. These assumptions include:

- *Fair value of common stock*—See the subsection titled "—Determination of Fair Value of Common Stock" below.
- *Expected term*—The expected term represents the period that stock-based awards are expected to be outstanding. The expected term for option grants is determined using the simplified method. The simplified method deems the expected term to be the midpoint between the vesting date and the contractual life of the stock-based awards.
- *Expected volatility*—Since we have been a privately held company and do not have any trading history for our common stock, the expected volatility is estimated based on the average volatility for comparable publicly traded biotechnology companies over a period equal to the expected term of the stock option grants. The comparable companies were chosen based on their similar size, stage in the life cycle or area of specialty. We will continue to apply this process until a sufficient amount of historical information regarding the volatility of our own stock price becomes available.
- *Risk-free interest rate*—The risk-free interest rate is based on the U.S. Treasury zero coupon issues in effect at the time of grant for periods corresponding with the expected term of option.

- *Expected dividend*—We have never paid dividends on our common stock and have no plans to pay dividends on our common stock. Therefore, we used an expected dividend yield of zero.

Determination of Fair Value of Common Stock

As there has been no public market for our common stock to date, the estimated fair value of our common stock has been determined by our board of directors as of the date of each option grant, with input from management, considering contemporaneous independent third-party valuations of common stock, and our board of directors' assessment of additional objective and subjective factors that it believed were relevant and which may have changed from the date of the most recent valuation through the date of the grant. These independent third-party valuations were performed in accordance with the guidance outlined in the American Institute of Certified Public Accountants' Accounting and Valuation Guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*. Based on our stage of development and other relevant factors, for valuations prior to April 2018, we determined that the option pricing method, or OPM, was the most appropriate method for estimating our enterprise value to determine the fair value of our common stock. The OPM treats common stock and preferred stock as call options on the total equity value of a company, with exercise prices based on the value thresholds at which the allocation among the various holders of a company's securities changes. Under this method, the common stock has value only if the funds available for distribution to stockholders exceeded the value of the preferred stock liquidation preferences at the time of the liquidity event, such as a strategic sale or a merger. A discount for lack of marketability of the common stock is then applied to arrive at an indication of value for the common stock. Starting in April 2018, we determined that the hybrid method was the most appropriate method for determining the fair value of our common stock. The hybrid method is a probability-weighted expected return method, or PWERM, where the equity value in one or more scenarios is calculated using an OPM. The PWERM is a scenario-based methodology that estimates the fair value of common stock based upon an analysis of future values for the company, assuming various outcomes. The common stock value is based on the probability-weighted present value of expected future investment returns considering each of the possible outcomes available as well as the rights of each class of stock. The future value of the common stock under each outcome is discounted back to the valuation date at an appropriate risk-adjusted discount rate and probability weighted to arrive at an indication of value for the common stock. In addition to considering the results of these independent third-party valuations, our board of directors considered various objective and subjective factors to determine the fair value of our common stock as of each grant date, including:

- the prices at which we sold shares of preferred stock and the superior rights, preferences and privileges of the preferred stock relative to our common stock at the time of each grant;
- our stage of development and material risks related to our business;
- the progress of our research and development programs, including the status and results of preclinical studies for our product candidates and progress of our development of manufacturing processes;
- external market conditions affecting the biopharmaceutical industry and trends within the biopharmaceutical industry;
- our results of operations and financial position, including our levels of available capital resources, outstanding debt and our historical and forecasted performance and operating results;
- the lack of an active public market for our common stock and our preferred stock;
- the likelihood of achieving a liquidity event, such as an IPO or sale of our company in light of prevailing market conditions;
- the hiring of key personnel; and

- the analysis of IPOs and the market performance of publicly traded companies in the biopharmaceutical industry, as well as recently completed mergers and acquisitions of peer companies.

The assumptions underlying these valuations represented management's best estimate, which involved inherent uncertainties and the application of management's judgment. As a result, if we had used significantly different assumptions or estimates, the fair value of our common stock and our stock-based compensation expense could have been materially different.

Once a public trading market for our common stock has been established in connection with the closing of this offering, it will no longer be necessary for our board of directors to estimate the fair value of our common stock in connection with our accounting for granted stock options and other such awards we may grant, as the fair value of our common stock will be determined based on the quoted market price of our common stock.

As of March 31, 2020, the unrecognized stock-based compensation expense related to employee stock options was $19.9 million and is expected to be recognized as expense over a weighted-average period of approximately 3.4 years. The intrinsic value of all outstanding stock options as of March 31, 2020 was approximately $35.9 million, based on the estimated public offering price of $15.00 per share, which is the midpoint of the price range set forth on the cover page of this prospectus, of which approximately $16.0 million related to vested options and approximately $19.9 million related to unvested options.

Valuation of Contingent Consideration

In connection with our acquisition of Vindico in October 2016, we agreed to pay additional purchase consideration based on the achievement of a certain developmental milestone using the acquired technology. The additional purchase consideration is payable in shares of our common stock. The number of shares of common stock issuable and the associated fair value could vary depending on (1) the price paid by investors in a qualified equity financing prior to the achievement of the milestone and (2) when and if the milestone is reached. The significant unobservable inputs used in the measurement of fair value of the contingent consideration were the probabilities of successful achievement of the milestone, the number of shares to be issued and the valuation of our common stock. As of March 31, 2019, the fair value of our common stock was determined with a probability of success of 20% and the estimated fair value of the common stock used was $12.23. The estimated number of shares issuable was 0.9 million as of March 31, 2019. In July 2019, we achieved the milestone and subsequently issued 866,125 shares of common stock to the former Vindico shareholders in August 2019. At the time of achievement, the liability was adjusted to reflect the achievement and the determined number of shares and fair value of common stock, determined to be $12.23 per share as of July 31, 2019.

We classified this contingent consideration as a liability on our consolidated balance sheets that we remeasured to fair value at each reporting date, and we recognized changes in the fair value of the contingent consideration liability as a component of operating income (loss) in our consolidated statements of operations and comprehensive loss. We recognized changes in the fair value of the contingent consideration liability until the milestone was met. Upon issuance of the common stock related to the milestone, the liability was reclassified to stockholder's deficit, within additional paid-in capital.

Valuation of Warrants to Purchase Preferred Stock

We classify warrants to purchase shares of our Series A-1 preferred stock and Series B preferred stock as a liability on our consolidated balance sheets as these warrants are free-standing financial instruments that may require us to transfer assets upon exercise. The warrants were initially recorded at fair value on the date of grant, and they are subsequently remeasured to fair value at each balance sheet date. Changes in fair value of the warrants are recognized as a component of other income (expense) in our consolidated statements of operations and comprehensive loss. We will continue to adjust the liability for changes in fair value until the warrants are

exercised, expire or qualify for equity classification. Upon the closing of this offering, the preferred stock warrants will become exercisable for common stock instead of preferred stock and the fair value of the warrant liability at that time will be reclassified to additional paid-in capital.

We utilize the Black-Scholes option-pricing model, which incorporates assumptions and estimates to value the preferred stock warrants. We assess these assumptions and estimates on a quarterly basis as additional information impacting the assumptions is obtained. Similar to the fair value measurement of our common stock, estimates and assumptions impacting the fair value measurement of our preferred stock warrants include the fair value per share of the underlying Series A-1 preferred stock and Series B preferred stock, the remaining contractual term of the warrants, the expected volatility of the price of the underlying preferred stock, the risk-free interest rate and the expected dividend yield. The most significant assumption in the Black-Scholes option-pricing model impacting the fair value of the preferred stock warrants is the fair value of our preferred stock as of each remeasurement date. We determine the fair value per share of the underlying preferred stock by taking into consideration our most recent sales of our preferred stock as well as additional factors that we deem relevant (including the various factors analyzed to determine the fair value of our common stock described in the subsection titled "—Determination of Fair Value of Common Stock" above). As of December 31, 2019 and March 31, 2020, the fair value of the Series A-1 preferred stock was $10.36 and $10.20, respectively, per share. As of December 31, 2019 and March 31, 2020, the fair value of the Series B preferred stock was $10.57 and $10.42 per share, respectively.

Off-Balance Sheet Arrangements

Since our inception, we have not engaged in any off-balance sheet arrangements, as defined in the rules and regulations of the SEC.

JOBS Act

The JOBS Act permits an "emerging growth company" such as us to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies. We have elected to use this the extended transition period under the JOBS Act until the earlier of the date we (1) are no longer an emerging growth company or (2) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our consolidated financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates.

We will remain an emerging growth company until the earliest to occur of: (1) the last day of the fiscal year in which we have more than $1.07 billion in annual revenue; (2) the date we qualify as a "large accelerated filer," with at least $700.0 million of equity securities held by non-affiliates; (3) the date on which we have issued more than $1.0 billion in non-convertible debt securities during the prior three-year period; and (4) the last day of the fiscal year ending after the fifth anniversary of our initial public offering.

Recent Accounting Pronouncements

A description of recently issued accounting pronouncements that may potentially impact our financial position, result of operations or cash flows is disclosed in Note 2 to our annual and quarterly consolidated financial statements included elsewhere in this prospectus.

Quantitative and Qualitative Disclosures About Market Risks

Interest Rate Risk

As of December 31, 2019 and March 31, 2020, we had cash, cash equivalents and short-term investments of $125.3 million and $103.4 million, respectively. Cash consists of deposits with financial

institutions. Interest income is sensitive to changes in the general level of interest rates. However, due to the nature of these investments, a hypothetical 10% change in interest rates during any of the periods presented would not have had a material impact on our consolidated financial statements included elsewhere in this prospectus.

As of December 31, 2019 and March 31, 2020, we had $20.0 million of borrowings outstanding under the Term A 2018 Loan Agreement. In addition we had $10.0 million of Term B loan borrowings outstanding under the 2018 Loan Agreement bearing interest at a variable rate equal to 30-day LIBOR plus 6.94%, subject to a floor of 8.94%. LIBOR is currently scheduled to be phased out in 2021. Before LIBOR is phased out, we may need to renegotiate the Term Loans to replace LIBOR with a new standard, which has yet to be established. The consequences of these developments cannot be entirely predicted, but could result in higher interest rates on the principal amount of the Term Loan. A hypothetical 10% change in interest rates during any of the periods presented would not have had a material impact on our consolidated financial statements included elsewhere in this prospectus.

Foreign Currency Exchange Risk

To date, foreign currency transaction gains and losses have not been material to our consolidated financial statements, and we have not had a formal hedging program with respect to foreign currency. Our expenses are generally denominated in U.S. dollars. However, we have contracted with a limited number of foreign vendors located in Europe and Canada and may contract with foreign vendors in the future. Our operations may be subject to fluctuations in foreign currency exchange rates in the future. A hypothetical 10% change in exchange rates during any of the periods presented would not have had a material impact on our consolidated financial statements included elsewhere in this prospectus.

Effects of Inflation

Inflation generally affects us by increasing our cost of labor. We do not believe that inflation had a material effect on our consolidated financial statements included elsewhere in this prospectus.

BUSINESS

Overview

We are a clinical-stage biopharmaceutical company dedicated to utilizing our proprietary gene engineering platform technologies to create next generation cell and gene therapeutics with the capacity to cure. We have discovered and are developing a broad portfolio of product candidates in a variety of indications based on our core proprietary platforms, including our non-viral piggyBac DNA Modification System, Cas-CLOVER site-specific gene editing system and nanoparticle- and AAV-based gene delivery technologies. Our core platform technologies have utility, either alone or in combination, across many cell and gene therapeutic modalities and enable us to engineer our wholly-owned portfolio of product candidates that are designed to overcome the primary limitations of current generation cell and gene therapeutics.

Within cell therapy, we believe our technologies allow us to create product candidates with engineered cells that engraft in the patient's body and drive lasting durable responses that may have the capacity to result in single treatment cures. Our chimeric antigen receptor T cell, or CAR-T, therapy portfolio consists of both autologous and allogeneic, or off-the-shelf, product candidates. We are advancing a broad pipeline with a plan to have six CAR-T product candidates in the clinic in 2021 in both hematological and solid tumor oncology indications. Our most advanced product candidate, P-BCMA-101, is an autologous CAR-T which we are currently evaluating in a potentially registrational Phase 2 clinical trial, which we believe, if successfully completed, could support a submission seeking accelerated regulatory approval, and an expanded Phase 1 clinical trial for the treatment of patients with relapsed/refractory multiple myeloma. In these clinical trials, following discussions with the U.S. Food and Drug Administration, or FDA, P-BCMA-101 can be dosed on a fully outpatient basis, without the requirement to reserve an intensive care unit, or ICU. The FDA has indicated that if data from our Phase 2 clinical trial do not provide evidence sufficient for accelerated approval, additional clinical testing would be required, including potentially a randomized controlled Phase 3 trial or trials. We are also currently enrolling patients in a Phase 1 clinical trial with our second autologous product candidate, P-PSMA-101, for the treatment of patients with metastatic castrate resistant prostate cancer, or mCRPC. We expect to file an investigational new drug application, or IND, for our first fully allogeneic CAR-T product candidate, P-BCMA-ALLO1, in late 2020 or early 2021 for patients with relapsed/refractory multiple myeloma, and have three additional allogeneic programs advancing toward anticipated IND filings in 2021, including P-MUCIC-ALLO1 and two Dual CAR allogeneic programs.

Within gene therapy, we believe our technologies have the potential to create next generation therapies that can deliver long-term, stable gene expression that does not diminish over time and may have the capacity to result in single treatment cures. We expect to file two INDs for our liver-directed gene therapy product candidates in orphan genetic diseases, including ornithine transcarbamylase, or OTC, deficiency and methylmalonic acidemia, or MMA, in late 2021 or early 2022 and 2022, respectively. We believe our proprietary gene engineering technologies have the potential to address the limitations of the transient nature of traditional gene therapies, thereby offering distinct advantages in liver-directed gene therapy. Furthermore, we believe that we have the potential to pursue multiple *in vivo* and *ex vivo* approaches in a wide array of cell types and tissues for non-liver-directed gene therapies.

Across our pipeline, we seek to leverage the unique aspects and capabilities of our core platform technologies to create cell and gene therapeutic product candidates that: (1) are differentiated by potent and durable activity and tolerability, (2) may allow us to address indications that are not accessible with the current generation of cell and gene therapeutics, and (3) may allow for widespread patient accessibility enabling broader commercial adoption.

1. Differentiation based on potent and durable activity and tolerability:

Cell Therapy. Our non-viral piggyBac DNA Modification System allows us to design CAR-T product candidates that can not only deliver very large CAR-containing transgenes to T cells, but also generate CAR-T products that deliver a high percentage of early memory T cells, such as stem cell memory T, or T_{SCM}, cells. T_{SCM}

cells are a stem cell form of T cells that engraft, self-renew and mature into every T cell subtype, including the effector T, or T_{EFF}, cells, which are tumor killing cells. We believe delivering a high percentage of T_{SCM} cells will drive more gradual tumor killing, thereby inducing less inflammatory cytokine response and improving the tolerability profile of our CAR-T product candidates relative to those of existing CAR-T therapies. Conceptually, through these T_{SCM} cells, we are able to deliver a predominantly self-renewing CAR-T "prodrug" that can engraft and produce unlimited T_{EFF} "drug", an approach that potentially results in more potent activity and duration of response.

Gene Therapy. PiggyBac confers many potential advantages compared to current gene therapies that rely on traditional viral-based delivery methods. In preclinical studies, piggyBac transgene delivery exhibited high-level, long-term, stable gene expression and allowed for permanent gene integration into DNA. In contrast, traditional viral vectors used for *in vivo* gene therapy, such as adeno-associated virus, or AAV, which is a virus that can be engineered to deliver DNA to target cells, when used alone are unable to permanently integrate into DNA and thus result in transient therapeutic transgene expression, which decreases over time. PiggyBac's ability to deliver high levels of stable integration and therapeutic transgene expression may also enable lower dosing when used in combination with AAV. Furthermore, in our preclinical studies the controlled integration of piggyBac has been shown to be non-mutagenic and non-oncogenic, which we believe makes it better suited as a delivery vehicle than AAV. As compared to nanoparticle alone-based delivery approaches, which similar to AAV alone approaches are transient in nature, nanoparticle combined with piggyBac may result in integration and stable therapeutic transgene expression and may also obviate the immunogenicity issues that are often associated with viral-based delivery methods.

2. Ability to address indications currently inaccessible by cell and gene therapeutics:

Cell Therapy. We believe the ability of our CAR-T product candidates to engraft and produce a potentially unlimited number of T_{EFF} cells is a critical advantage that may allow the field of CAR-T to move beyond hematological tumors and into solid tumors, an area historically limited due to the lack of persistence and durability of therapeutic cells needed to produce a clinical impact.

Gene Therapy. We are utilizing advantages that we have engineered in our piggyBac, nanoparticle and AAV-based gene delivery technologies to potentially overcome many of the limitations of current *in vivo* gene therapies. PiggyBac's ability to permanently integrate into DNA enables us to extend our reach into diseases associated with many tissues of the body that contain either dividing or non-dividing cells, a feature not available to transient viral-based delivery methods. Additionally, our potential to enable durable gene expression within tissues with rapidly dividing cells should enable us to pursue the entire spectrum of genetic diseases including many indications within the pediatric population.

3. Widespread patient accessibility enabling broader commercial adoption:

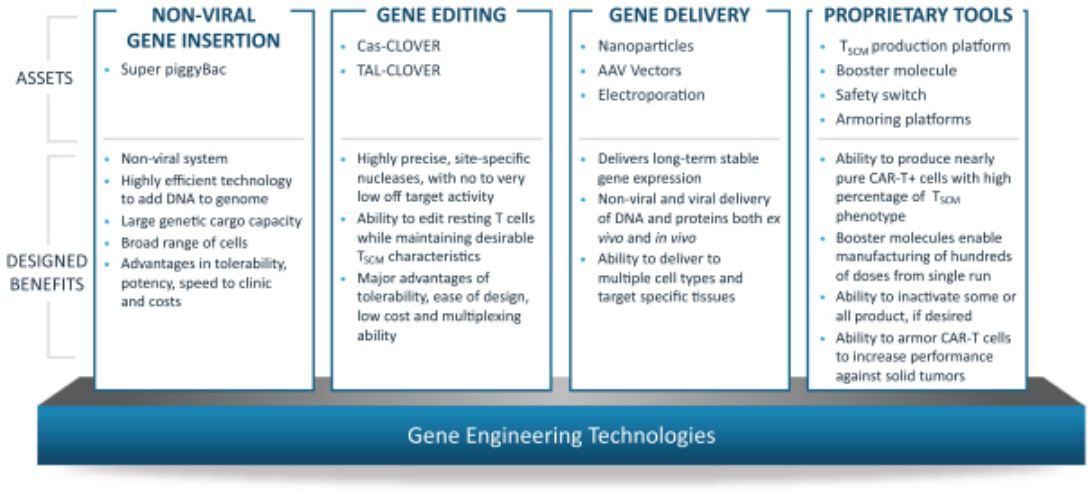
Cell Therapy. CAR-T treatments have faced both cost and safety challenges. Our engineering of proprietary booster molecules allows us to generate hundreds of doses from a single manufacturing run in our fully allogeneic CAR-T program. We believe this will lead to a significant reduction in costs to levels in the range of traditional biologic therapeutics in oncology. Additionally, piggyBac is intrinsically more cost effective than historical CAR-T methods as it utilizes nucleic acids, DNA and RNA produced using good manufacturing practices, or GMP, which are faster and cheaper to produce than GMP virus. Our focus on T_{SCM}, first initiated in our autologous CAR-T product candidates, offers potential tolerability benefits and has demonstrated our potential ability to limit cytokine release syndrome, or CRS, and neurotoxicity that has limited the broad commercial adoption and utility of existing autologous CAR-T therapeutics. As a result of its tolerability profile and following discussions with the FDA, our potentially registrational Phase 2 clinical trial can be dosed on a fully outpatient basis, which we believe will also support broader adoption, if approved.

Gene Therapy. PiggyBac's ability to permanently integrate into the DNA yields the potential to provide more durable responses within gene therapy for many diseases that current viral-based approaches are unable to address. Importantly, we believe piggyBac will drive our potential ability to deliver single treatment cures,

overcoming the limitations of viral-based therapies related to tolerability and durability. PiggyBac in combination with AAV may enable lower dosing, thereby improving tolerability and reducing costs and, in future product candidates, nanoparticle delivery of piggyBac will eliminate the need for AAV and may further improve tolerability and reduce cost. We believe these characteristics will potentially yield significant commercial advantages and confer meaningful pharmacoeconomic benefits to payors potentially resulting in broader commercial success.

Our Proprietary Cell and Gene Engineering Platform Technologies

We have developed a proprietary suite of gene engineering technologies that have broad utility. The breadth and depth of our technology platforms fall into three primary categories: (1) non-viral gene insertion, (2) gene editing and (3) gene delivery, supported by additional proprietary tools, as summarized in the graphic below:



- ***Non-viral gene insertion***. Our proprietary, non-viral piggyBac DNA Modification System, which includes our Super piggyBac transposase enzyme, is highly efficient at stable gene insertion and has a significantly larger genetic cargo capacity as compared to viral methods (potentially greater than 20x lentivirus). As a result, our product candidates can contain transgenes large enough to include multiple chimeric antigen receptor, or CAR, and/or T cell receptor, or TCR, genes, selection genes, safety switch genes and potentially other cargo for specific treatment applications, making it a highly versatile platform. Importantly, piggyBac works in a wide variety of cell types, both dividing and non-dividing, T cells, B cells, natural killer cells, hematopoietic stem cells, or HSC, induced pluripotent stem cells, primary hepatocytes and numerous other cell types giving it broad reach and applicability.

- ***Gene editing with precise specificity***. Our proprietary, highly precise Cas-CLOVER site-specific gene editing technology is easy to use, highly efficient and capable of multiplexing and has shown low to no off-target activity in our preclinical studies, which we believe provides a distinct tolerability advantage over other gene editing systems. In addition, unlike many other gene editing technologies, Cas-CLOVER can efficiently edit resting T cells, allowing for the maintenance of the highly desirable T_{SCM} product composition in allogeneic product candidates, an important component of our CAR-T approach. Both of our proprietary site-specific gene editing platforms, Cas-CLOVER, and a related technology called TAL-CLOVER, can also be used for *in vivo* gene therapies.

- ***Gene delivery***. We have numerous technologies and platforms for delivering DNA, RNA and proteins, including into cells both *ex vivo* and *in vivo*. These include nanoparticle technology, AAV technology, and both *ex vivo* and *in vivo* electroporation, which is a process by which we use a pulse of electricity to briefly increase the permeability of cells.

- ***Additional proprietary tools.*** We also have a number of other technologies and tools that have been developed for certain specific applications including:

  – *T_{SCM} Phenotype.* We have developed and patented a number of manufacturing methods and media to preserve a high percentage of T_{SCM} in our product candidates. We believe that the T_{SCM} cell phenotype is key to success in CAR-T therapies.

  – *Positive selection.* We create product candidates utilizing a fully human drug resistance gene that can be employed during manufacturing to create a purified product that is essentially 100% CAR-positive, minimizing one of the sources of CAR-T toxicity and thereby potentially enhancing the therapeutic index. Our initial use for positive selection is for CAR-T, but this technology has utility in other cell types.

  – *Booster molecules.* We have developed a technology that enables improved expansion of gene-edited allogeneic cells without affecting their desirable T_{SCM} characteristics. The booster molecule is an RNA-based technology introduced to T cells during the manufacturing process, which results in transient expression of a receptor on the surface of T cells that allows the cells to respond to antibody-based activator molecules, resulting in significant expansion of the cells without causing maturation or exhaustion of the cells. Using this approach, we can create hundreds of doses from a single manufacturing run yet maintain the high percentage of desirable T_{SCM} cells in the final product candidate. This technology is currently used in our allogeneic CAR-T program but may have utility in other cell types.

  – *Safety switch.* We have developed a proprietary safety switch comprised of fully human genes that can be activated by administration of a small molecule, and thereafter, has the potential to rapidly eliminate some or all of the genetically modified cells in the patient after administration.

  – *CAR binding libraries.* In addition to traditional scFv binders, we have access to and utilize novel binder technologies, such as heavy-chain-only antibody fragments, which, compared to scFv, are more stable, result in less T cell exhaustion and may result in lower immunogenicity.

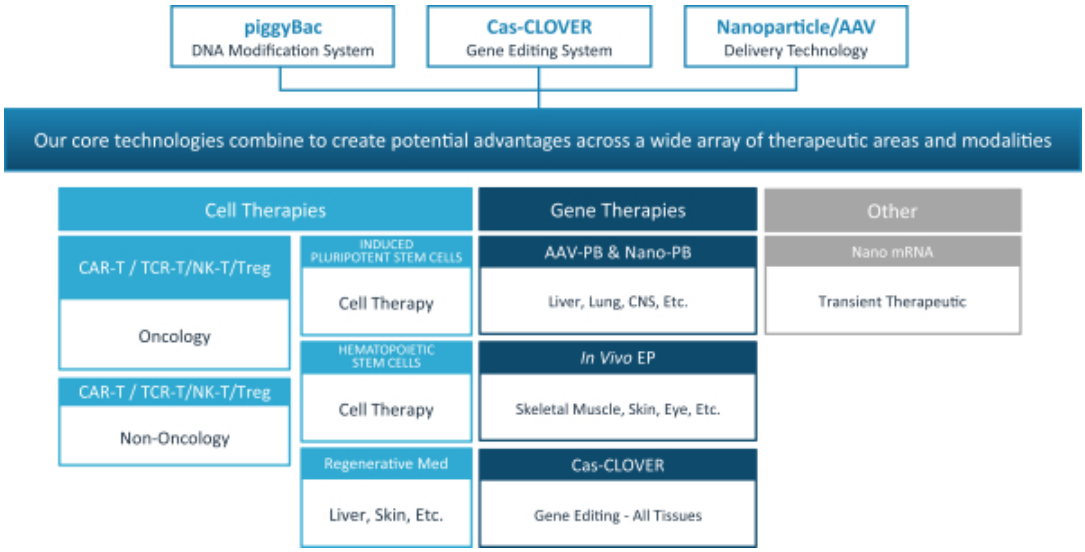
  – *Armoring platforms*. We can use our genetic engineering tools to make other modifications to our product candidates to potentially improve their performance against solid tumors, an approach commonly referred to as “armoring”. We have several types of armoring platforms:

    ¡ *Conditional gene expression system*: Due to the very large cargo capacity of piggyBac, we have demonstrated the ability to deliver into the genome a conditional gene expression system that expresses one or more genes of interest only when the cell becomes activated or stimulated by binding of the CAR molecule to its specific target. This approach is superior to constitutive expression systems in that tight conditional regulation limits gene expression to relevant sites, such as the tumor microenvironment. In this way, supporting molecules such as pro/anti-inflammatory molecules, checkpoint inhibitors, cytokines, interleukins and chemokines can be expressed by the T cell and/or delivered locally to the tumor or target cell.

    ¡ *Decoy receptors*: CAR-T therapies can be enhanced by using piggyBac to deliver molecules that sequester and block negative immune regulators, such as PD-1 and TGFbR2. Decoy/null or positive switch receptors can be used to block or convert to activators, respectively, regulatory signals from the tumor microenvironment that otherwise work to exhaust T cell responses.

- *Gene knockout*: Our Cas-CLOVER site-specific gene editing platform can be used to armor both autologous and allogeneic CAR-T therapies by targeting functional regulatory molecules, such as checkpoint blockade genes. These protein receptors are involved in exhaustion mechanisms by the tumor microenvironment.

These broad platform technologies, when used in various combinations, enable us to pursue a wide array of therapeutic modalities and indications. We believe this component of our strategy and business model will be a core value driver for us over the long term. The following graphic presents the broad utility of our platform technologies:



Our Pipeline

Our broad and versatile set of proprietary platform technologies has allowed us to develop a deep pipeline of wholly-owned, novel product candidates with composition of matter protection through at least 2037. Our initial focus is on CAR-T for oncology and liver-directed gene therapy programs for rare diseases. The following table summarizes our current product candidate portfolio:

CAR-T for Oncology

Autologous Programs

Our autologous CAR-T product candidates are developed using a patient's own cells to treat his or her disease. We believe our ability to develop product candidates with a high percentage of T_{SCM} cells may result in improved tolerability and the potential to see more durable responses than the current generation of CAR-T therapeutics. We are also exploring novel dosing strategies in our autologous programs to more fully optimize clinical approaches. Importantly, all the learnings from our autologous programs are also being transferred and utilized to inform and improve our allogeneic programs.

P-BCMA-101

- Our most advanced product candidate, P-BCMA-101, is an autologous CAR-T targeting B cell maturation antigen, or BCMA. We are currently evaluating P-BCMA-101 in a potentially registrational Phase 2 clinical trial and expanded Phase 1 clinical trial for the treatment of patients with relapsed/refractory multiple myeloma in the outpatient setting.
- Interim results from our ongoing Phase 1 clinical trial of P-BCMA-101 are encouraging. We have seen favorable tolerability results with very low levels of CRS and almost no neurotoxicity. Based on the interim tolerability results observed in the Phase 1 clinical trial, we initiated our Phase 2 clinical trial on a fully outpatient basis.

- The FDA granted Regenerative Medicine Advanced Therapy Designation in November 2018 and Orphan Drug Designation in May 2019 for the treatment of multiple myeloma.
- Manufactured using our non-viral piggyBac DNA Modification System.

P-PSMA-101

- Autologous CAR-T product candidate targeting prostate-specific membrane antigen, or PSMA, being developed to treat patients with mCRPC.
- In preclinical studies, P-PSMA-101 has demonstrated elimination of tumor cells to undetectable levels in 100% of animals, with only one incidence of a relapse in the low dose cohort. These data were generated in a preclinical model of mCRPC in which immuno-deficient mice were implanted with solid tumors comprised of a human mCRPC cell line. To our knowledge based on published literature, no other product candidate has shown complete solid tumor elimination in this preclinical model. Should P-PSMA-101 show promising efficacy in the clinic, we would likely accelerate our allogeneic version of this product candidate, P-PSMA-ALLO1.
- The IND for P-PSMA-101 was filed and we received authorization to proceed from the FDA. We subsequently initiated a Phase 1 clinical trial and dosed the first patient in May 2020.
- Manufactured using our non-viral piggyBac DNA Modification System.

Allogeneic Programs

Our fully allogeneic CAR-T product candidates are developed using well-characterized cells derived from a healthy donor as starting material with the goal of enabling treatment of potentially hundreds of patients from a single manufacturing run. Doses could be cryopreserved and stored at treatment centers for future off-the-shelf use.

P-BCMA-ALLO1

- Allogeneic CAR-T product candidate targeting BCMA, being developed to treat relapsed/refractory multiple myeloma patients.
- We have designed P-BCMA-ALLO1 to be fully allogeneic, with genetic edits to eliminate or reduce both host-vs-graft and graft-vs-host alloreactivity.
- We anticipate an IND filing and initiation of a Phase 1 clinical trial in late 2020 or early 2021.
- Manufactured using our proprietary Cas-CLOVER site-specific gene editing technology to reduce or eliminate reactivity, in addition to our piggyBac DNA Modification System for non-viral gene insertion and our booster molecule technology for manufacturing scalability.

P-MUC1C-ALLO1

- Allogeneic CAR-T product candidate in preclinical development for multiple solid tumor indications. We believe P-MUC1C-ALLO1 has the potential to treat a wide range of solid tumors derived from epithelial cells, such as breast, colorectal, lung, ovarian, pancreatic and renal cancers, as well as other cancers expressing a cancer-specific form of the Mucin 1 protein, or MUC1C.
- P-MUC1C-ALLO1 was designed to leverage the learnings of our P-BCMA-ALLO1 program. We have designed P-MUC1C-ALLO1 to be fully allogeneic, with genetic edits to eliminate or reduce both host-vs-graft and graft-vs-host alloreactivity.
- We have demonstrated the elimination of tumor cells to undetectable levels in two preclinical models of breast cancer, including a model of triple negative breast cancer in which immuno-deficient mice were implanted with a human metastatic breast cancer cell line.
- We anticipate an IND filing and initiation of a Phase 1 clinical trial in 2021.
- Manufactured using our proprietary Cas-CLOVER site-specific gene editing technology to reduce or eliminate reactivity, in addition to our piggyBac DNA Modification System for non-viral gene insertion and our booster molecule technology for manufacturing scalability.

P-PSMA-ALLO1

- Allogeneic CAR-T product candidate targeting PSMA being developed to treat patients with mCRPC.
- We have designed P-PSMA-ALLO1 to be fully allogeneic, with genetic edits to eliminate or reduce both host-vs-graft and graft-vs-host alloreactivity.
- We anticipate an IND filing and initiation of a Phase 1 clinical trial in 2022.
- Manufactured using our proprietary Cas-CLOVER site-specific gene editing technology to reduce or eliminate reactivity, in addition to our piggyBac DNA Modification System for non-viral gene insertion and our booster molecule technology for manufacturing scalability.

Dual CAR Allogeneic Programs

We have a portfolio of allogeneic Dual CAR product candidates, which contain two fully functional CAR molecules to target cells that express at least one of the two intended targets, that are in preclinical studies. We believe that our ability to include two or more fully functional CAR molecules into a T cell could be a significant competitive advantage. We intend to file INDs and initiate Phase 1 clinical trials in late 2021 and 2022.

Gene Therapy Programs

Our gene therapy product candidates have been developed by utilizing our piggyBac technology together with AAV to overcome the major limitations of traditional AAV gene therapy. We believe that our approach will result in integration and long-term stable expression at potentially much lower doses than AAV technology alone, thus also conferring cost and tolerability benefits. Our eventual goal is to completely replace AAV with our nanoparticle technology, freeing future product development in gene therapy of AAV limitations.

P-OTC-101. P-OTC-101 is a liver-directed gene therapy combining piggyBac technology with AAV for the *in vivo* treatment of OTC deficiency. OTC deficiency is a urea cycle disease caused by congenital mutations in the OTC gene with a high unmet medical need. In a neonatal mouse model of severe OTC deficiency, we observed greater than 80% of hepatocytes permanently corrected with a single injection of a piggbyBac in combination with AAV to deliver an OTC therapeutic transgene. We anticipate an IND filing and initiation of a Phase 1 clinical trial for P-OTC-101 in late 2021 or early 2022.

P-MMUT-101. P-MMUT-101 is a liver-directed gene therapy combining piggyBac technology with AAV for the treatment of MMA. MMA is an inborn error of metabolism caused by congenital mutations in the methylmalonyl-CoA mutase, or MMUT, gene affecting amino acid metabolism pathways with a high unmet medical need. We anticipate an IND filing and initiation of a Phase 1 clinical trial for P-MMUT-101 in 2022.

Our Strategy

Our mission is to develop next generation cell and gene therapeutics with the capacity to cure.

We intend to develop and commercialize novel cell and gene therapeutic products by using our broad gene engineering platform technologies to treat patients with high unmet medical need across a wide of array of indications. Our current pipeline includes autologous and allogeneic CAR-T product candidates for oncology indications and piggyBac + AAV product candidates as liver-directed gene therapy programs for orphan genetic diseases. We plan to pursue our mission through the following strategies:

Rapidly develop and commercialize autologous and allogeneic CAR-T therapies targeting hematological malignancies. We are developing both P-BCMA-101 and P-BCMA-ALLO1, product candidates for patients with relapsed/refractory multiple myeloma, to address cost and safety limitations of current CAR-T therapies utilized in this indication. Over time, we plan to develop our product

candidates in earlier lines of treatment and for other hematological malignancies and will seek to commercialize in community hospital settings, and eventually in outpatient infusion sites. Based on the toxicity profile observed in the Phase 1 clinical trial and following discussions with the FDA, our potentially registrational Phase 2 clinical trial can be dosed on a fully outpatient basis. Should data from our P-BCMA-ALLO1 program, which we anticipate will begin to be available in late 2020 or early 2021, meet our expectations, we would consider reallocating our efforts and resources to advancing our allogeneic program.

Leverage the strength and breadth of our platform technologies to develop autologous and allogeneic CAR-T therapies in solid tumors. Our platform technology is designed to address the historical CAR-T limitations in treating solid tumors, which result from the lack of product persistence needed to have a clinical impact on these indications. We are advancing both P-PSMA-101, P-PSMA-ALLO1 and P-MUC1C-ALLO1 as candidates for the treatment of solid tumors. P-PSMA-101 is an autologous CAR-T being evaluated in a Phase 1 clinical trial in which patient dosing was initiated in May 2020. Should P-PSMA-101 show promising efficacy in the clinic, we would likely accelerate our allogeneic version of this product candidate, P-PSMA-ALLO1. Due to the promising preclinical data we are seeing from P-BCMA-ALLO1, we have decided to advance our first CAR-T targeting MUC1C, P-MUC1C-ALLO1, as a fully allogeneic program with the IND and start of a Phase 1 clinical trial expected in the second half of 2021.

Utilize our platform technologies to pursue liver-directed gene therapy programs. Our lead gene therapy product candidates, P-OTC-101 and P-MMUT-101, utilize our piggyBac technology combined with AAV to target orphan genetic diseases with the goal of developing single-treatment cures. Over time, we intend to develop additional therapies for rare diseases and to replace AAV technology with nanoparticle-based delivery of our *in vivo* gene therapies. We believe that nanoparticle delivery of gene therapy would be a major advancement over AAV delivery by improving tolerability, lowering cost, allowing for re-dosing and addressing indications that AAV will not be able to effectively address, including diseases where correction necessitates delivery of large therapeutic transgenes. We plan to rapidly develop, and if approved, commercialize these gene therapy product candidates.

Utilize our technology and capabilities to develop allogeneic multi-CAR-T products. Our allogeneic product candidates include Dual CD19/CD20 for B cell malignancies and potentially some autoimmune diseases, Dual BCMA/CD19 for multiple myeloma and an undisclosed Dual CAR for solid tumors. We believe these multi-CAR programs highlight the ability of our piggyBac platform to enable product candidates that other technologies will not be able to achieve easily, if at all. We plan to continue developing multi-CAR product candidates, which we believe could represent a next generation of CAR-T therapies.

Evaluate strategic partnerships and structures to create value and continue to innovate and develop our platform technologies. Our platform technologies are highly differentiated with the ability to create many product candidates across a wide array of therapeutic modalities and indications. As such, we intend to seek partnerships and collaborations to expand our reach and create additional value in pursuit of our mission. In addition, we may evolve our corporate structure to implement a holding company or similar structure in order to maximize the value of our platform technologies and product candidates.

Our Team and Investors

We are led by an experienced management team with an unwavering commitment to developing next generation cell and gene therapeutics with the capacity to cure. Our Chief Executive Officer, Eric Ostertag, M.D., Ph.D., was the first graduate from the Gene Therapy Program at the University of Pennsylvania and has over 20 years of experience in cell and gene engineering, founding multiple biotechnology companies, including Transposagen Biopharmaceuticals. Dr. Ostertag served as Transposagen's Chief Executive Officer for 13 years,

developing next-generation gene engineering technologies that were eventually spun out to create Poseida Therapeutics, in early 2015, and has served as our CEO since our founding. Our Chief Financial Officer and Chief Business Officer, Mark J. Gergen, J.D., has over 25 years of experience in healthcare and life science companies and, prior to joining our company in early 2018, was part of the executive management team for a number of successful biotechnology companies, including Amylin Pharmaceuticals, Mirati Therapeutics, and Halozyme Therapeutics. As of March 31, 2020, the management team is supported by our 149 employees, 86 of whom hold advanced degrees, including 50 with a Ph.D. and/or M.D. degree, and many with extensive experience in drug discovery and development.

Since our inception, we have raised approximately $334.3 million from our veteran group of strategic and life sciences focused institutional investors who support our mission. Our key investors include Adage Capital, Aisling Capital, Boxer Capital, Fidelity, Longitude Capital, Malin Corporation, Millennium Capital, Novartis Pharma AG, Pentwater Capital, Perceptive Advisors, Schonfeld and Vivo Capital.

Our Proprietary Platform Technologies

We believe we are well-positioned to drive the continued advancement of CAR-T therapies for the treatment of oncology indications, as well as gene therapies for severe orphan genetic diseases with the mission to create next generation product candidates with the capacity to cure. We have developed our genetic engineering technologies to overcome the primary limitations of current generation cell and gene therapeutics. Our technologies are highly differentiated and designed to provide potentially significant advantages as highlighted below:

- *PiggyBac DNA Modification System – advantages in cell therapy applications*
  - Preferentially delivers therapeutic transgenes to T_{SCM} cells
  - Works in resting T cells, which is important in preserving T_{SCM} cells
  - Very large cargo capacity allows insertion of additional molecules, including multi-CAR and/or TCR approaches
- *PiggyBac DNA Modification System – advantages for in vivo gene therapy applications*
  - Permanent and stable therapeutic transgene integration into DNA
  - Works efficiently in dividing and non-dividing cells and tissues
  - Potential to address pediatric liver indications
  - May enable single-treatment cures
- *Cas-CLOVER Site-Specific Gene Editing – advantages in cell therapy applications*
  - Ability to perform highly efficient multiplexed gene editing enables fully allogeneic CAR-T product candidates
  - Efficient editing in resting T cells, which is important in preserving T_{SCM} phenotype in CAR-T
  - Precise gene editing: high on-target site specificity with no to very low off target activity minimizes tolerability concerns
- *Cas-CLOVER Site-Specific Gene Editing – advantages in gene therapy applications*
  - Enables *in vivo* gene editing
  - Works in all types of cells and tissues tested to date

- *Nanoparticle / AAV Delivery Technologies*

  - Enables both *ex vivo* and *in vivo* gene therapies
  - Delivers piggyBac and Cas-CLOVER Systems to nearly any cell type or tissue

- *Proprietary Tools, such as Booster Molecules*

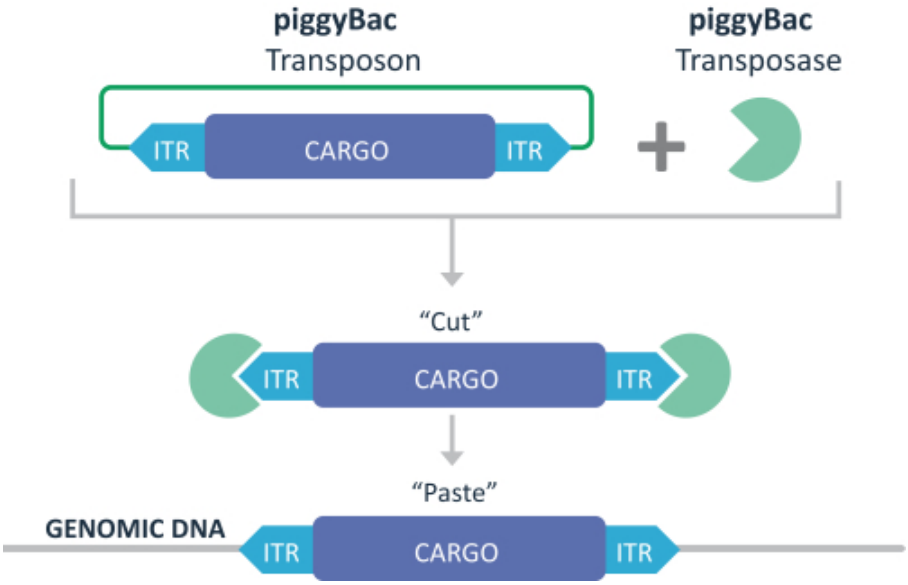
  - Booster molecules overcome the "Allo Tax", which commonly refers to the suboptimal manufacturing yield and characteristics of CAR-T products due to genetic modification, by enabling improved expansion of genetically modified T cells
  - Enables expansion of T cells without affecting their desirable T_{SCM} characteristics
  - Allows us to create hundreds of doses from a single healthy donor

Our technology platforms fall into three primary categories: (1) non-viral gene insertion, (2) gene editing and (3) gene delivery, supported by additional proprietary tools; and have broad utility and serve as the foundation of our development programs.

Non-viral gene insertion: piggyBac DNA Modification System

DNA transposons are genetic elements that efficiently move from a plasmid to a chromosome via a cut and paste mechanism. DNA transposons have been used as a gene transfer method, including in CAR-T manufacturing. The piggyBac DNA Modification System is our proprietary non-viral gene engineering technology that can be used to add therapeutic transgene DNA to the genome using the highly efficient Super piggyBac transposase enzyme, a hyperactive enzyme that was genetically modified to enable very high efficiency transposition of piggyBac transposons. We believe piggyBac enables efficient and precise transposition and multiple differentiated product attributes.

The image below depicts the piggyBac DNA Modification System:



Therapeutic genes encoded within the cargo region of the piggyBac DNA transposon transgene are flanked by non-translated inverted terminal repeat sequences, or ITRs, that are specifically recognized by the

transposase enzyme for the highly efficient process of stably integrating the therapeutic transgene cargo into specific sequences (TTAA nucleotides) in the genome. The transposase enzyme can be co-delivered to the cell as a protein or encoded in either DNA or RNA.

The piggyBac platform is our core technology used for the development of CAR-T and other gene therapy product candidates in our pipeline. We believe our piggyBac DNA Modification System enables multiple differentiated product attributes including:

- CAR-T product candidates with a high percentage of desirable T_{SCM} cells, leading to better engraftment and duration of response with the potential for re-response, as well as a better tolerability profile;
- very large cargo capacity (potentially greater than 20x lentivirus)—allows efficient delivery of large therapeutic transgenes, including the possibility of multiple CAR or TCR molecules and incorporation of selection genes, safety switches and/or armoring strategies;
- non-viral delivery system that reduces the risk of mutagenesis and oncogenesis compared to viral delivery systems;
- high insertion efficiency and stable therapeutic transgene expression in a wide range of dividing and non-dividing cells and tissues; and
- shorter timelines and less costly manufacturing than viral methods.

As discussed previously, the piggyBac transposon preferentially transposes therapeutic transgenes into early memory T cells, including T_{SCM} cells. We believe retroviral transgene delivery methods, such as lentivirus and g-retrovirus, are not efficient at delivering transgenes into early memory T cells. This is a key differentiator that allows us to manufacture CAR-T products with a high percentage of T_{SCM} cells, giving them desirable characteristics.

While the genetic cargo capacity of viruses typically used in CAR-T manufacturing, such as lentivirus and g-retrovirus, is limited to approximately 10-20 kilobases, or kb, piggyBac has demonstrated cargo delivery of greater than 200 kb, allowing transfer of multiple useful genes. The very large cargo capacity of piggyBac permits incorporation of multiple genes into our product candidates to further enhance tolerability and potency, with all CAR-T cells in our current CAR-T product candidates carrying a CAR molecule gene, a safety switch gene and a selection gene. The cargo capacity also allows for packaging of multiple CAR-T encoding genes and/or TCR genes allowing for the creation of Dual and other multi-CAR-T product candidates.

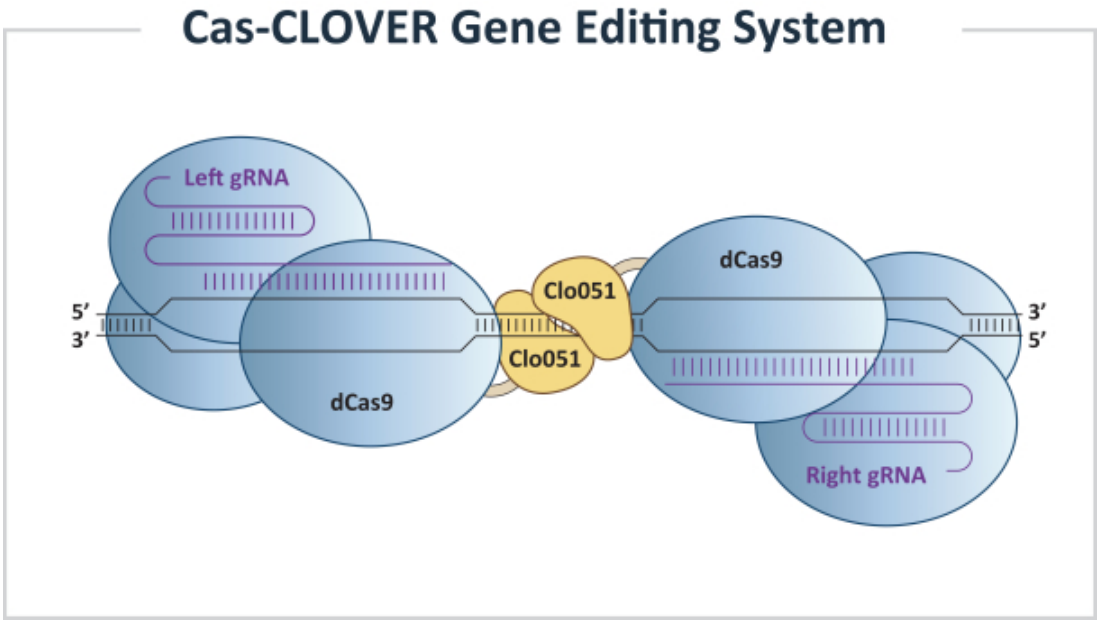
PiggyBac ITRs and other components act as strong insulators, ensuring stable transgene expression and reducing risks of oncogenesis. PiggyBac has shown lower integration into intragenic regions compared with lentivirus, meaning that it is less likely to cause a detrimental mutation.

Additionally, piggyBac is estimated to have a significantly lower cost in production of GMP material and a much shorter timeline for GMP production as compared to GMP production of viral vectors.

The image below depicts our piggyBac transposon transgene approach for creating CAR-T product candidates:

Gene Editing with Precise Specificity: Cas-CLOVER Site-Specific Gene Editing Technology

We have developed gene editing technology that uses a proprietary obligate homodimer nuclease system named CLOVER, which consists of parts of the Type IIS restriction endonuclease, Clo051. Genome cutting by this enzyme is strictly dependent upon dimerization, which makes it a fully dimeric system and gives it precise site-specificity. Cas-CLOVER uses a CRISPR (Clustered, Regularly Interspaced Short Palindromic Repeats) associated protein 9, or Cas9, enzyme that has been permanently altered and is unable to cut DNA (called dCas9). The dCas9 acts only as a DNA binding protein when combined with an appropriate guide RNA (gRNA). Cas-CLOVER combines the advantages of the first-generation CRISPR system (ease of design, low cost, multiplexing ability) with the advantages of the obligate homodimer nuclease systems (precise specificity). Importantly for T cell applications, Cas-CLOVER works well in resting T cells, which allows us to avoid maturation and exhaustion during production and assists in preserving the T_{SCM} phenotype.



The most widely used platform for gene editing is CRISPR and an associated protein, Cas9. This gene editing technology is derived from a naturally occurring viral defense mechanism in bacteria. It works by binding the Cas9 enzyme to guide RNA, which can direct the Cas9 enzyme to a specific DNA sequence to make cuts in double-stranded DNA. Once the DNA is cut, the cell uses naturally occurring DNA repair mechanisms to rejoin the cut ends.

The CRISPR/Cas9 technology has been shown to result in unwanted off-target cutting, which means additional cutting at unintended sites that are often similar but not identical to the target DNA site. This off-target cutting can result in permanent mutations to the genomic DNA, which may unintentionally lead to detrimental mutations and oncogenesis, thereby creating significant safety concerns when used for manufacture of cell and gene therapeutics.

Another popular site-specific gene editing platform used for cell and gene therapeutic applications are the Transcription Activator-Like Effector Nucleases, or TALENs. They are constructed by fusing a TAL DNA-binding domain to a DNA cleavage domain, typically FokI, which functions as an obligate homodimer, meaning two half-sites must come together at the exact same place and the exact same time in order to make a cut. Given the requirement for two half-sites, this type of system is sometimes called a fully dimeric system.

While TALEN technology can often cut specific sites in DNA with much higher fidelity than CRISPR/Cas9, it is relatively labor intensive and expensive to build. Conceptually similar, ZFN technology is a gene editing technology comprised of a class of DNA binding proteins used to make double-stranded breaks in DNA. Like TALEN technology, ZFN requires more preparation and work to use through the creation of arrays needed to target specific desired edits. TALEN and ZFN technologies both require activation of the cells to edit and do not work well in resting T-cells, and thus fail to preserve a high percentage of the T_{SCM} phenotype for CAR-T.

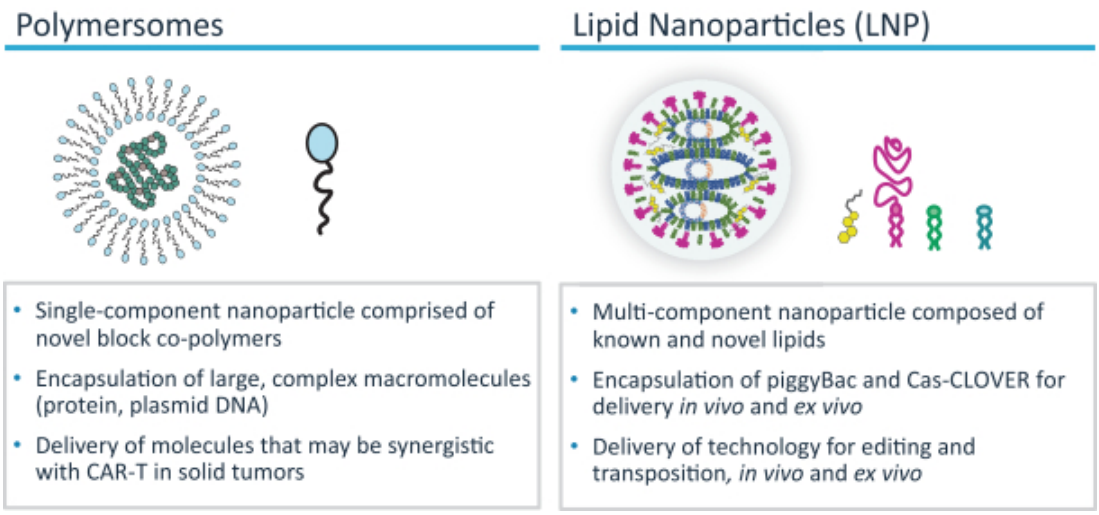
Another emerging gene editing technology is known as base editors. Base editing uses components from CRISPR systems together with other enzymes to directly install point mutations into cellular DNA or RNA without making double-stranded DNA breaks. DNA base editors comprise a catalytically disabled nuclease fused to a nucleobase deaminase enzyme and, in some cases, a DNA glycosylase inhibitor. Base editing technology is known to create some level of unwanted off-target mutations but the full extent is not yet known and could present a safety concern for allogeneic CAR-T where products could be given to many patients.

Gene Delivery Technologies: Nanoparticle Technology, In vivo and Ex vivo Electroporation and AAV

In addition to our piggyBac platform for non-viral gene insertion and our Cas-CLOVER platform for gene editing, we have developed a set of platform technologies for gene delivery to allow us to deliver RNA, DNA and proteins into cells both *ex vivo* and *in vivo* for various applications. These technologies include nanoparticle technology, AAV technology and *ex vivo* and *in vivo* electroporation technologies and approaches. Because of the breath of potential utility of piggyBac and Cas-CLOVER, we foresee a need for different delivery modalities for different applications.

In our autologous and allogeneic CAR-T product candidates, we edit the T cells *ex vivo* using electroporation to deliver the necessary piggyBac components required to stably insert the therapeutic transgene into the genome of the cells. In the case of our allogeneic CAR-T product candidates, we also introduce Cas-CLOVER into the T cells via electroporation to edit the cells to eliminate alloreactivity. In our initial liver-directed gene therapy programs, we are using AAV technology to deliver piggyBac to the liver *in vivo*.

We have developed a variety of distinct nanoparticle compositions to achieve different delivery objectives. These nanoparticles fall generally into two categories, polymersomes and lipid nanoparticles, or LNPs. Polymersomes are single component particles comprised of novel block co-polymers and are designed to deliver large complex molecules such as proteins. LNPs are multi-component nanoparticles composed of known and novel lipids and are designed to deliver nucleic acids including mRNA and DNA. We are evaluating polymersomes to deliver therapeutic proteins that may be synergistic with our solid tumor CAR-T product candidates. We are evaluating LNPs to deliver both our piggyBac and Cas-CLOVER technologies.



Our longer-term goal for our nanoparticle platform is to be able to eliminate the need for AAV for *in vivo* gene therapies or *ex vivo* electroporation for *ex vivo* gene therapies by using nanoparticles to deliver our technologies into cells. We are also developing the technology and ability to deliver piggyBac and Cas-CLOVER through *in vivo* electroporation. While we have not yet nominated a product candidate using *in vivo* electroporation technology, we are exploring delivery of therapies to tissues that can be accessed from outside the body including skin, muscle and eye, which could open a range of potential development areas and new programs.

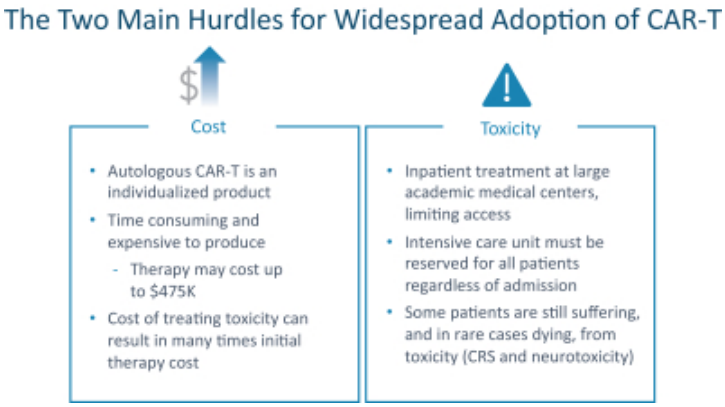
CAR-T for Oncology: History of CAR-T

Until recently, all major treatment modalities for cancer shared the same problem: they killed cancer cells, but not without damaging healthy cells and tissues. Immuno-oncology, the concept of using the patient's own immune system to attack cancer, has the potential to eliminate this challenge. A person's adaptive immune system is responsible for recognizing and eliminating a number of threats to the body, such as infectious agents, as well as infected and abnormal cells. T cells, specialized white blood cells capable of detecting and killing infected and abnormal cells, are a crucial component of this adaptive immune response. CAR-T therapies work to redirect these T cells, which are extremely specific killers, to kill cancer cells through genetic modification.

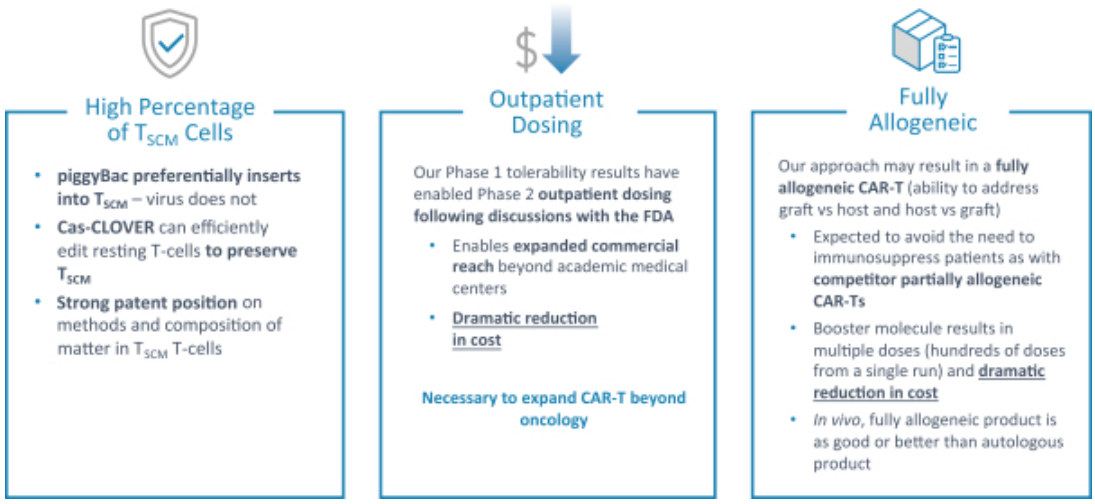
CAR-T therapy has emerged as a revolutionary and potentially curative therapy for patients with hematologic cancers, including those that have become heavily refractory to standard therapy. Currently, only autologous CAR-T therapy is available, in which T cells are removed from the body, engineered with receptors specific to cell surface targets on the patient's tumor cells, and administered back into the body. Once the engineered T cells are administered, they are able to recognize and kill the tumor cells that express the target for the engineered receptor. Researchers are now also developing allogeneic, or off-the-shelf, CAR-T therapy, in which a single donor or cell line is used to create a large number of doses of CAR-T, thereby greatly reducing the costs of manufacturing.

The Challenges to Widespread Adoption of CAR-T

Despite the potent activity from early CAR-T entrants to the market, commercial adoption has been relatively slow to date. We believe that there are two main hurdles to widespread adoption of CAR-T. The first hurdle is cost. The therapies themselves can cost hundreds of thousands of dollars, and there are potentially significant additional costs from managing the occasionally substantial toxicities from the early-generation CAR-T therapies. The second hurdle is the toxicities themselves. While some progress is being made in managing the side effects, the risk remains significant for many patients, requiring that these early generation CAR-T products to be administered only in large hospitals and treatment centers with intensive care units, as compared to more accessible community hospitals and outpatient infusion centers.



We believe that our approach enables us to address these hurdles to unlock the potential of CAR-T therapies. The combination of our higher percentage T_{SCM} product and a potentially improved tolerability profile may allow us to move beyond academic medical centers and broaden the reach of these products. In our ongoing clinical trials of P-BCMA-101, we are already dosing on a fully outpatient basis, following discussions with the FDA, which will enable expanded reach and lower cost. In addition, our booster molecule technology allows us to drive scale to our allogeneic manufacturing process, resulting from the ability to produce hundreds of doses of our allogeneic CAR-T product candidates from a single manufacturing run from a single healthy donor. This dramatically reduces the manufacturing cost of CAR-T therapy to levels in the range of traditional biologic therapeutics in oncology and enabling off-the-shelf availability for immediate use.



Addressing the Limitations of Early-Generation CAR-T Therapies

Although early-generation CAR-T therapy has shown significant potential, there are a number of limitations. The great majority of early-generation and current CAR-T therapies are produced using viral-based manufacturing. We believe that there are a number of inherent problems related to viral-based manufacturing that cause the limitations of other CAR-T therapies. T cell engineering is typically achieved via viral transduction, the process of introducing foreign DNA into a cell using a virus, most notably with retroviruses, such as g–retrovirus or lentivirus.

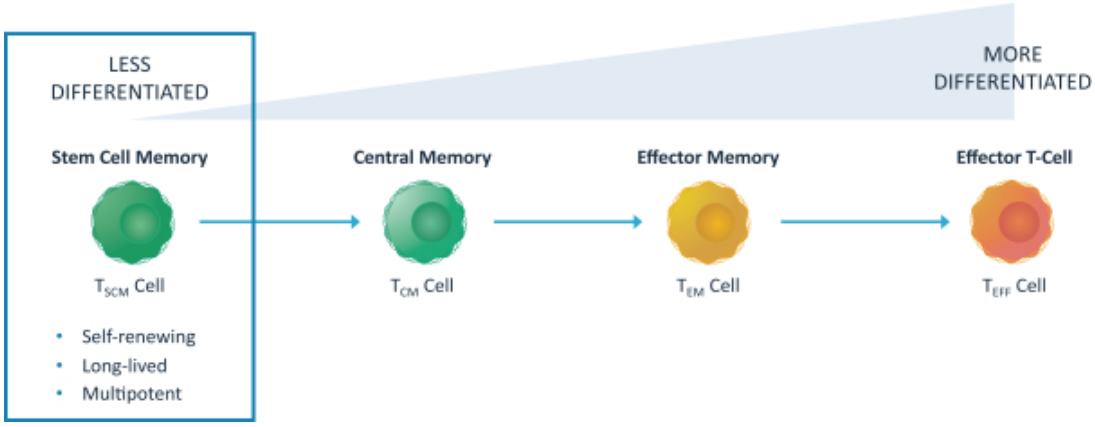
Despite extensive optimization of these viral vectors, their limitations are becoming more evident, including safety concerns regarding the insertional profile, limited genetic cargo capacity, and undesirable characteristics of the final product. We use our proprietary non-viral piggyBac DNA Modification System to deliver CAR molecule genes to T cells. The most significant advantage of using a non-viral approach is the ability to generate CAR-T products comprised of a high percentage of T_{SCM} cells. We believe this has the potential to result in therapies that elicit more consistent and durable responses with less toxicity. Additionally, we believe our non-viral approach will have much lower manufacturing costs and shorter manufacturing timelines. We also believe that our technology will enable us to develop allogeneic, or off-the-shelf, CAR-T therapies from healthy donors that will be potentially as good as or better than autologous CAR-T products, be available off-the-shelf and be a fraction of the cost of autologous therapies.

Not all T cells are created equally

T_{SCM} cells are believed to be ideal for cell therapy because they have the potential to engraft, be long-lived, self-renewing and multi-potent in that they can create wave after wave of more differentiated cells. There

is a one-way maturation pathway from T_{SCM} cells to central memory T cells, or T_{CM}; then to effector memory T cells, or T_{EM}; and lastly, to T_{EFF} cells. As T cells mature and differentiate, their core functions and capabilities change, impacting their potency and durability. Our approach is to utilize a high percentage of less differentiated T cells in our product candidates with the goal of increasing persistence and mitigating some of the key limitations of early-generation CAR-T products. We also believe that creating a product with high T_{SCM} may potentially be the key to success in solid tumors where the T_{SCM} cells can engraft and create wave after wave of cells to attack the tumor. Conceptually, products that are more maturated and contain more effector cells are like a drug, whereas our products that have a high percentage of T_{SCM} cells are like a prodrug. The T_{SCM} cells do not kill tumor cells, they engraft and create the more differentiated cells that do the killing.

The following figure illustrates this one-way T cell maturation pathway, from T_{SCM} cell to T_{EFF} cell:



Based upon our clinical data to date, we have observed a strong correlation between the percentage of T_{SCM} in the product candidate and best clinical response. In addition to our own experience, there is growing evidence and recognition that T_{SCM} is correlated with efficacy in the clinic.

CAR-T in Hematological Tumors

Early-generation CAR-T therapeutics have demonstrated an ability to achieve impressive responses in hematological malignancies, even in pre-treated patients who are relapsed and/or refractory to prior lines of standard therapies. Dramatically higher response rates than those reported for all prior therapeutics have been achieved in some indications, with some patients likely being cured. Despite these outcomes, however, significant challenges remain with regard to safety and cost. Furthermore, we believe additional improvements could be made with regard to duration of response as a number of patients have relapsed after receiving CAR-T therapy and duration of response has generally been poor.

A major limitation of early-generation CAR-T therapies is the potential for severe toxicity, most notably CRS and neurotoxicity, either of which can be fatal. Current CAR-T therapeutics are administered at large medical centers with ICUs so that an ICU can be reserved for all patients being administered CAR-T in the case they experience these severe toxicities. Furthermore, the cost of dealing with the toxicities associated with CAR-T can oftentimes exceed the cost of the therapeutic itself. There are also significant cost, manufacturing and commercial scalability challenges ahead for other CAR-T candidates, mainly due to the nature of viral-based manufacturing. These issues greatly limit the commercial reach of current CAR-T products. There are several potential reasons for the poor duration of response, which generally fall into two categories: elimination of the CAR-T cells from the body and loss of expression of a CAR-T target on a tumor cell, known as antigen escape.

Safety

The excitement over the impressive responses seen initially with early-generation CAR-T approaches has unfortunately been tempered by potentially life-threatening toxicities, most notably CRS and neurotoxicity. Typical clinical symptoms of neurotoxicity include headache, confusion, delirium, language disturbance and seizures. As more is being understood about these toxicities, it is now appreciated that they may be caused by different molecular mechanisms. However, both are rooted in a T cell response that is essentially too rapid and too strong. The CAR-T cells and other immune cells of the patient release cytokines and other molecules that initiate immune cascades that can be fatal if not avoided or successfully treated.

T_{SCM} cells express fewer cytotoxic effector molecules than more maturated T cells and are postulated to differentiate and develop cytotoxic capability gradually. We believe the T_{SCM} cell phenotype may lead to a more controlled expansion of CAR-T and more gradual killing of tumor cells, thereby lessening the severity of toxicities, such as CRS and neurotoxicity, and resulting in a CAR-T product that can be administered on a fully outpatient basis.

A second safety feature incorporated into our CAR-T product candidates is the positive selection for CAR-positive cells during the manufacturing process. Drug resistance genes have been employed in other cellular therapeutics as a mechanism for selecting and purifying gene-modified cells to improve the efficiency of gene therapy. Our product candidates are engineered to express a variation of the human dihydrofolate reductase, or DHFR, gene. Cells containing this variant of the DHFR gene are slightly resistant to the drug methotrexate, or MTX. The advantage of DHFR over other drug-resistance strategies is that MTX is not genotoxic and preferentially kills dividing cells. Importantly, this gene-drug combination has been previously demonstrated to permit *ex vivo* selection of genetically modified T cells with relatively low concentrations of MTX.

Additionally, we enrich for gene-modified CAR-positive cells during *ex vivo* expansion, thereby purifying the therapeutic product and controlling for any patient-to-patient variability in raw material or manufacture, making our CAR-T product candidates essentially 100% CAR-positive. This contrasts with competing products that do not utilize positive selection and typically contain a significant number of CAR-negative cells that cannot kill cancer cells but are artificially activated and expanded outside of the body and may contribute to CRS and/or neurotoxicity. Thus, we believe that positive selection is another mechanism, in addition to the high percentage of T_{SCM} cells, that may result in our CAR-T product candidates having a significantly greater therapeutic index.

Given that every CAR-T cell has a transgene, which is stably integrated into the genome, there is the possibility that the transgene delivery part of the CAR-T manufacturing process could create a detrimental mutation that allows the cell to expand in an uncontrolled manner, which can result in the cell itself becoming cancerous. Additionally, in the case of viral-manufacturing, some viral components that are integrated into the CAR-T cell as part of the transgene, such as the long terminal repeats, or LTRs, of the transgene may be able to activate a gene already in the cell, resulting in the cell becoming cancerous, a process called oncogenesis.

There has been an example of a clonal expansion in a patient who received a CAR-T product made from lentivirus. A clonal expansion means that a single T cell was given a proliferative advantage and was able to grow to a majority of all the CAR-positive cells in the patient. In this case, the clonal expansion was caused by the lentivirus inserting into a gene important for proliferation. Our CAR-T product candidates utilize our proprietary piggyBac technology. PiggyBac has shown low integration into intragenic regions, meaning that it is less likely to cause a detrimental mutation. Also, unlike retroviruses, piggyBac does not contain LTR sequences, but rather ITRs and other components which act as strong insulators, enhancing stable transgene expression and lowering risk of oncogenesis.

We have included a cellular safety switch in each of our product candidates as an additional safety mechanism. Both CRS and neurotoxicity are thought to be related to an overactive T cell response. Therefore, timely intervention to diminish the number of CAR-T cells should be an effective method of managing the

majority of adverse events. We believe an ideal intervention technique is one that could be titrated such that not all CAR-T cells would be eliminated, leaving some for continued therapeutic effect. As of March 31, 2020, we have not needed to use the safety switch clinically in any patient due to our tolerability profile.

Commercial Scalability

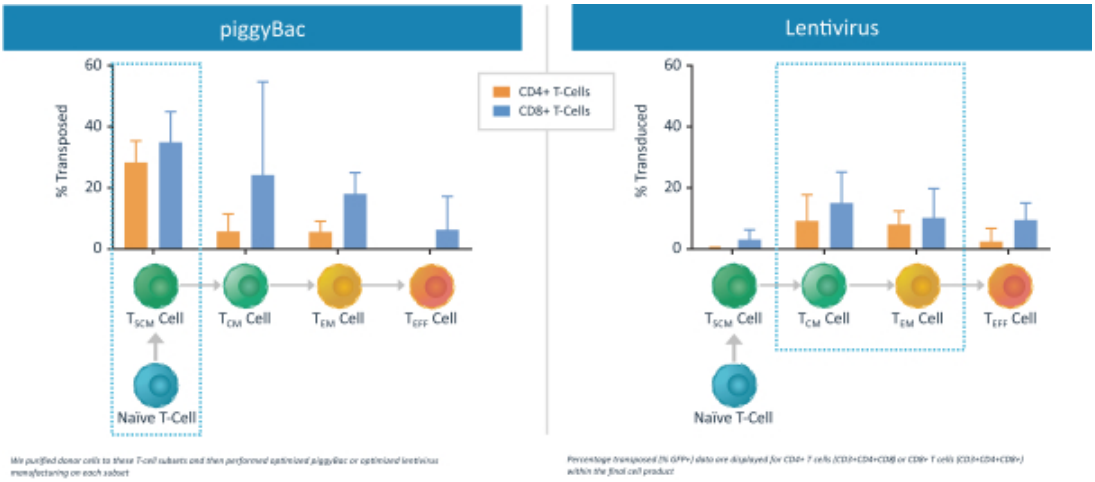
Another challenge with early-generation CAR-T products is their commercial scalability. Autologous CAR-T products are, by definition, individualized products. They are also typically expensive to produce, particularly when using viral-based manufacturing methods. We believe our non-viral piggyBac approach is more efficient and cost effective than historical CAR-T methods as it utilizes GMP nucleic acids, DNA and RNA, which are faster and cheaper to produce than GMP virus. We have further optimized the manufacturing process to eliminate some of the costly materials associated with the viral-based methods, including magnetic beads and cytokines.

CAR-T products that elicit severe and potentially fatal toxicities, such as CRS and neurotoxicity, require that the drug be administered in a tertiary care hospital where the physicians are familiar with treating these toxicities and where admission to an intensive care unit is an option. The potential for these severe toxicities currently precludes administration in community hospitals or outpatient infusion centers. In our dose-escalation Phase 1 clinical trial, as of January 31, 2020, there have been no toxicities that have resulted in admission of patients to intensive care units. Based on these results, we initiated our potentially registrational Phase 2 clinical trial and, following discussions with the FDA, are dosing on a fully outpatient basis.

Efficacy Challenge: Elimination of CAR-T Cells

There are numerous explanations as to why CAR-T cells are eliminated from a patient after administration, but we believe the primary explanation is that the majority of T cells in other CAR-T products are more maturated and short-lived T cells, including T_{EFF} cells. Not all T cells are created equally, and we believe the ability to develop a product that consists predominantly of early memory T cells, particularly T_{SCM} cells, is the key to increasing duration of response and tolerability. Our non-viral piggyBac manufacturing method is the only commercially viable approach known to us that can create CAR-T products with a high percentage of the highly desirable T_{SCM} cells.

In order to test the ability of our piggyBac DNA Modification System to preferentially deliver CAR-containing transgenes to T_{SCM} cells, we conducted a preclinical experiment in which we separated T cells into their various subtypes, then individually put those subsets through either an optimized piggyBac manufacturing process or an optimized lentivirus process and measured the percentage of transposed or transduced cells in each final product subset. As shown in the figures below, piggyBac was very efficient at transposing (the piggyBac process of delivering the CAR-containing transgene) in T_{SCM} cells, while lentivirus was relatively ineffective at transducing (the lentiviral process of delivering the CAR-containing transgene) in T_{SCM} cells. We measured both CD4+ T cells (also known as T helper cells) and CD8+ T cells (also known as cytotoxic T cells) which represent two subsets of T cells believed to interact and be important in immune function and T cell response.

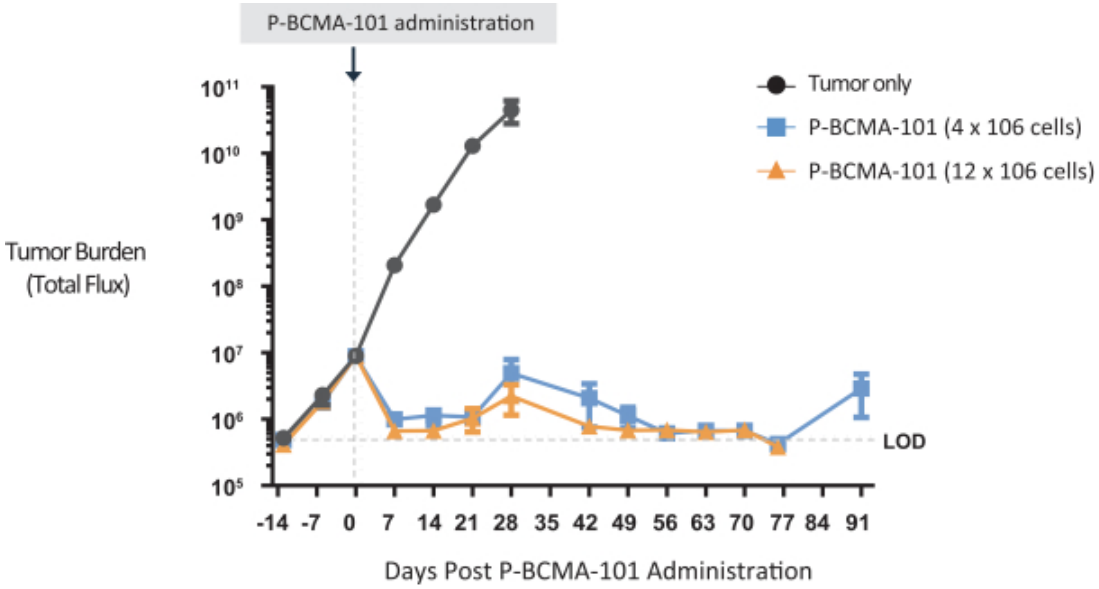


Given the one-way maturation pathway of T cells, we believe utilizing a genetic engineering method that preferentially modifies T_{SCM} cells is essential for creating a final product with a high percentage of T_{SCM} cells. During manufacturing, once we have completed the genetic modification step, we then perform a positive selection step to eliminate cells that have not been modified. Lastly, we activate and expand the remaining cells under conditions that favor self-renewal of T_{SCM} cells without differentiation, resulting in a product that has a high percentage of T_{SCM} cells, even when starting with patient material with a relatively low percentage of T_{SCM} cells. Our non-viral piggyBac DNA Modification System typically yields T_{SCM} cell percentages reaching as high as 80%. We compared our piggyBac manufacturing method to a lentivirus-based manufacturing method that utilizes alternative media (Aim V, Thermo Fisher Scientific), different T cell stimulation (CD3/CD28 beads from Dynal/Thermo Fisher Scientific) and virus for vector integration (lentivirus). The sorted T cell subsets were put through the piggyBac process once in a pilot experiment with cells from one donor, and again in a comparison with the lentivirus process with cells from three donors. The early memory component, or combined T_{SCM} and T_{CM} cells, typically comprise greater than 90% of the cells of our product candidates. Notably, in December 2019, we were issued a U.S. patent that has claims that cover any modified T cell product that has 25% or more T_{SCM} cells.

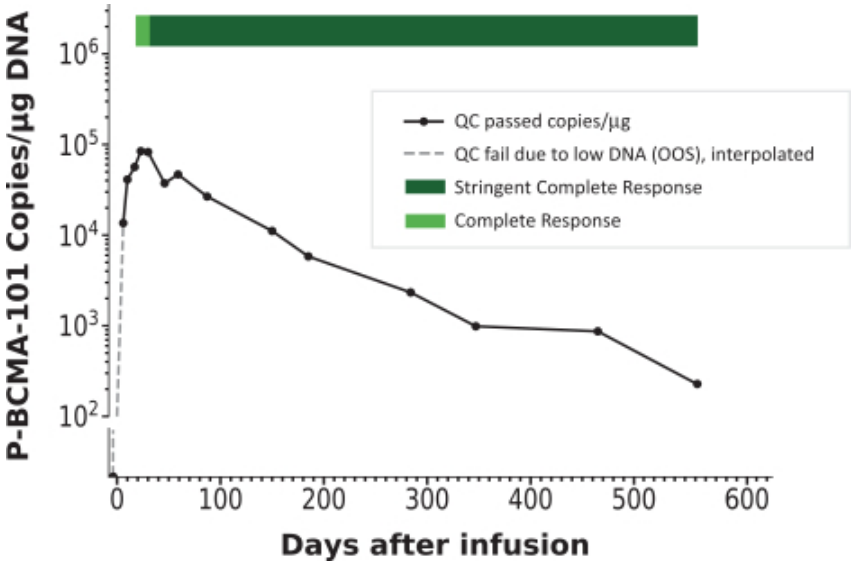
Others in the field of CAR-T development are also attempting to increase the percentage of T_{SCM} cells in their products through alternative methods during the manufacturing process, including the addition of small molecule inhibitor drugs and various cytokines, reducing the time in culture, and physically enriching through sorting methods for early T cells. However, we believe these methods all have inherent problems that will limit the ability to successfully create a final product candidate with a high percentage of T_{SCM} cells.

In both in our own clinical data and in data published and presented by others, a higher percentage of T_{SCM} cells in CAR-T products have been shown to correlate with clinical response, and our CAR-T product candidates contain a high percentage of T_{SCM} cells. Our goal is that our product candidates will overcome the limitations of other CAR-T products in many respects, including potency and durability of response.

The importance of these T_{SCM} cells can be seen in a preclinical model in which mice are implanted with a highly aggressive human multiple myeloma cell line (MM.1S). In this model, P-BCMA-101 engrafted with marked persistence *in vivo*, and remarkably, was able to control relapses without re-administration of product, as shown in the chart below:



We have also seen clinical evidence that our product candidates that are comprised of a high percentage of T_{SCM} cells can engraft and persist for exceptionally long periods in some patients. As of March 31, 2020, one patient from Cohort 2 of the Phase 1 clinical trial for P-BCMA-101 had been in a durable response for greater than 24 months. In another patient from Cohort 3 of the same clinical trial, we have recently observed our CAR-T modified cells in the peripheral blood at 18 months post infusion. Because T_{EFF} cells are generally thought to live for a few weeks up to a few months, the presence of these cells in the patient's blood at 18 months is evidence that some number of T_{SCM} cells have engrafted and continue to produce more differentiated cells to continue to fight the cancer. This patient was in a stringent complete response, or sCR, that was 18 months as of March 9, 2020. The figure below shows the measurement of our CAR-T modified cells in this patient.



More maturated T cells, which already have a short lifespan compared with T_{SCM} cells, can be eliminated from the patient due to their inability to persist, leading to poor efficacy of the product. One reason that premature loss of CAR-T occurs is the presence of CAR binding molecules on the surface of the T cell that can interact with each other. This results in crosslinking of the CAR molecule and a phenomenon called tonic signaling, in which the CAR-T cells are essentially always stimulated and active. Tonic signaling results in premature loss of efficacy, poor expansion and cell death, referred to as T cell exhaustion. We use binding molecules, such as Centyrins and heavy-chain-only antibody fragments, that are unable to crosslink and are resistant to tonic signaling.

Efficacy Challenge: Antigen Escape and Antibodies

Some CAR-T products have been shown to lose efficacy due to what is called antigen escape, which occurs when expression of a CAR-T target on a tumor cell is lost or drastically reduced due to selective pressure from the CAR-T therapeutic, resulting in an expansion of the tumor cells that have escaped the ability of the CAR-T to kill them. To avoid antigen escape, we have focused our efforts on selecting targets where we believe expression is less likely to be reduced. For example, BCMA is important for cell proliferation, and so is considered less likely to be lost by the tumor cell following CAR-T treatment. Likewise, PSMA plays a key role in modulating signaling pathways implicated in mCRPC and so may also be less susceptible to antigen escape.

Another method to prevent antigen escape involves pursuing multiple targets on the cancer cell with the same CAR-T product. The likelihood that a cancer cell will be able to simultaneously downregulate or lose expression of multiple targets, as opposed to any single target, is greatly reduced. While the genetic cargo capacity of viral vectors is quite limited, piggyBac has demonstrated the ability to deliver greater than 20 times more genetic cargo capacity, allowing transfer of multiple CAR molecule genes simultaneously. We believe the large genetic cargo capacity of piggyBac could allow us to further address antigen escape by including two or more CARs or TCRs on the same T cell. We have three Dual CAR programs currently in preclinical development designed to seek improved efficacy including potentially addressing antigen escape in some indications.

In our P-BCMA-101 Phase 1 clinical trial, we have observed that some patients have formed antibodies, also known as anti-drug antibodies in response to our treatment. This is not uncommon in biologic drug development, including CAR-T development. Based upon our data to date, it appears that anti-drug antibodies are more likely to form at higher dose cohorts. In our expanded Phase 1 clinical trial for P-BCMA-101 we are investigating additional dosing strategies that may reduce or eliminate the impact of anti-drug antibodies, including administering the dose in smaller cycles over the first 30 days and adding rituximab to the preconditioning regimen to potentially suppress any antibody response.

CAR-T in Solid Tumors

Efficacy Challenge

In addition to the standard concerns regarding persistence of T cells in the treatment of hematologic malignancies, there are factors that exacerbate this problem when using CAR-T products for the treatment of solid tumors. To date, the great majority of early-generation CAR-T products have not demonstrated significant responses in solid tumors and there are a number of potential explanations for this poor efficacy. First, it is possible that CAR-T cells have more difficulty accessing solid tumor cells. In some diseases, such as acute lymphoblastic leukemia, the tumor cells are easily accessible by the CAR-T cells. However, in most solid tumors, there are a number of factors that may make it more difficult for CAR-T cells to access the tumor. Second, it is possible that solid tumor cells have changes in expression of certain checkpoint genes that render them resistant to killing by T cells. Third, the center of many solid tumors is very hypoxic, or low in oxygen concentration, and this environment is not thought to be conducive to T cell function.

There have been a few exceptions to the poor efficacy of CAR-T in solid tumors, notably in glioblastoma multiforme and hepatocellular carcinoma, where treatment with CAR-T has led to complete responses, or a CR, in solid tumors. In these rare cases, the patient was treated with numerous administrations of CAR-T product. Though CAR-T cells are not as effective against solid tumor cells as they are against hematological tumor cells, this can potentially be overcome by giving multiple administrations of CAR-T, resulting in numerous waves of more maturated T cells killing the cancer cells. This approach would be more viable if there were an unlimited number of cells with which to treat the patient. However, manufacturing early-generation CAR-T products is relatively time consuming and expensive, and the final product is comprised of a limited number of cells, thereby making this approach impractical for many patients.

All of our solid tumor product candidates, including P-PSMA-101, P-PSMA-ALLO1 and P-MUC1C-ALLO1, are comprised of a high percentage of T_{SCM} cells, which we believe are able to engraft, self-renew and mature into every T cell subtype, including the T_{EFF} cells, which can persistently attack the tumor until deep responses are potentially achieved. Therefore, we believe our CAR-T product candidates have the potential to achieve high rates of response against solid tumors with a single administration. P-PSMA-101 resulted in the elimination of tumor cells to undetectable levels in 100% of animals, with one incidence of a relapse in the low dose cohort, in a preclinical model of mCRPC in which immuno-deficient mice were implanted with solid tumors comprised of a human mCRPC cell line. To our knowledge based on published literature, no other product candidate or already approved cancer therapeutic has shown complete solid tumor elimination in any animal in this preclinical model.

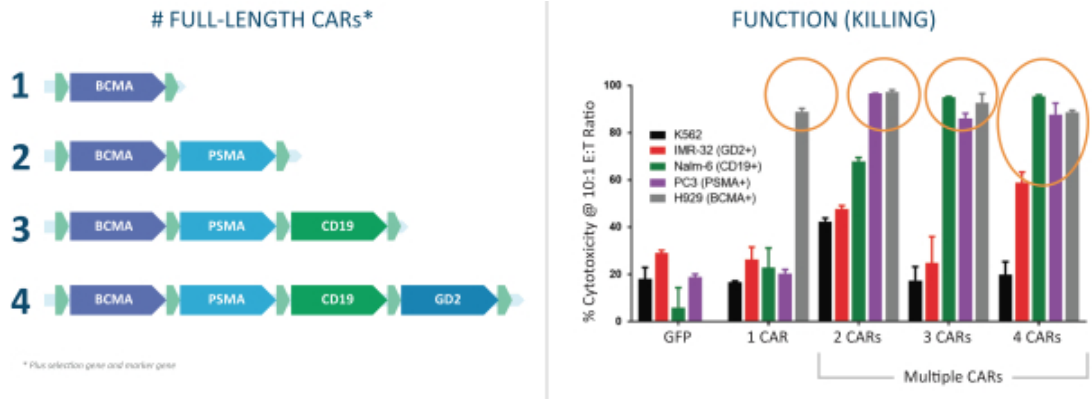
Safety

Our solutions for addressing the toxicity concerns regarding CRS and neurotoxicity with respect to hematological tumors also apply to solid tumors. However, there are additional toxicity concerns for CAR-T products when administered to treat solid tumors. When compared to hematological tumors, solid tumors generally have fewer unique surface targets that are not also expressed on healthy cells, so greater care must be taken when choosing targets to avoid on-target/off-tumor toxicity, which occurs when a CAR-T cell recognizes the intended target on a healthy cell and kills that cell. We seek to address this risk by choosing targets that are overexpressed in cancer cells, such as PSMA and MUC1C, and by using binding molecules that we believe are more effective at binding the cancerous form of the target.

As we expand our solid tumor CAR-T pipeline, we expect it to become harder to identify targets that are unique to the solid tumor cells. Therefore, we are developing sophisticated systems designed to direct a CAR-T cell to kill a tumor cell based on presence or absence of a combination of targets. For example, we believe that we can develop a CAR-T that will kill only tumor cells that have both target A and target B on their surface but will not kill normal cells with target A or target B singularly on their surface.

A related strategy is developing a CAR-T that will kill a cell only if it expresses target A and B (which may be present on both cancer cells and normal cells) but not target C (which may only be present on normal cells). All such strategies require the co-expression of more than two CAR molecules on the surface of the same CAR-T cell. We believe the piggyBac DNA Modification System can enable these approaches due to its large genetic cargo capacity. In contrast, viral-based approaches are typically unable to deliver more than two full-length CAR molecules.

We have demonstrated that we can produce CAR-T cells that express up to four full-length CAR molecule genes, each with a different target specificity, along with two additional genes, using a single piggyBac transposon in manufacturing (left panel). We further demonstrated that, when expressed, all CAR molecules perform specific killing of corresponding cell lines that express the target (right panel):



Specific killing was evaluated via reporter-based killing assays where the indicated human tumor cells were genetically modified to express the luciferase gene. These tumor cells were co-cultured in vitro with CAR-T cells for 24 hours at a defined effector to target ratio of ten to one (10:1). The CAR-T cells expressed different combinations of full-length CARs: (1) BCMA CARTyrn, (2) BCMA CARTyrin and PSMA CARTyrin, (3) BCMA CARTyrin, PSMA CARTyrin and CD19 scFv-based CAR or (4) BCMA CARTyrin, PSMA CARTyrin, CD19 scFV-based CAR and GD2 scFv-based CAR. Cytotoxicity (specific lysis) was evaluated by adding luciferin substrate and reading luminescence signal and percent cytotoxicity was calculated by enumerating the luminescence of tumor cells alone versus tumor cells with CAR-T cells. Each individual CAR demonstrated cytotoxicity against its cognate antigen, even when expressed in the presence of three additional full-length CARs.

Another approach to treating solid tumors is to express a variation of a TCR that is specific for a cancer-associated protein that is only expressed inside of the cancer cell, in contrast to a CAR molecule that only recognizes targets on the surface of the cell. We believe we can use the TCR strategy in combination with the CAR strategy by expressing combinations of both CAR and TCR molecules on the surface of the same cell using the piggyBac manufacturing method.

Commercial Scalability

We believe each of the commercial and scalability benefits of our approach in hematological tumors would also apply to solid tumors.

Allogeneic or Off-The-Shelf CAR-T Therapies

Efficacy Challenge

The goal of an allogeneic, or off-the-shelf, CAR-T product is to create a large number of doses of CAR-T from a single donor or cell line. A successful allogeneic CAR-T product could be used as an off-the-shelf product to treat any patient with a specific indication, thereby greatly decreasing the costs associated with manufacturing. However, if an allogeneic product requires high doses or multiple doses in order to achieve the same activity as a similar autologous product, then many of the potential cost-saving advantages of an allogeneic product would not be realized.

Gene editing tools are widely used to eliminate expression of certain cell surface molecules, which may be used to avoid the potential reactivity of donor cells against the patient, which results in graft-vs-host disease, or GvHD, as well as the reactivity of the patient's cells against the CAR-T product, a reaction called host-vs-graft. We believe it is imperative to use gene editing tools that can efficiently edit resting T cells when creating an allogeneic CAR-T product, as activating T cells will initiate the maturation pathway. Once T cells begin maturating, they start to lose their desirable T_{SCM} characteristics and thereby become exhausted, rendering the resulting product less efficacious.

In addition, unlike many other gene editing technologies, Cas-CLOVER can efficiently edit resting T cells, allowing for the maintenance of the highly desirable T_{SCM} product composition in allogeneic product candidates, an important component of our CAR-T approach. Our goal with all of our allogeneic product candidates is to create a product with a profile comparable to or better than an autologous version of the same product; in the case of our first fully allogeneic product candidate for multiple myeloma, P-BCMA-ALLO1, our efficacy benchmark will be against P-BCMA-101 and other BCMA targeting programs.

Safety

In addition to the standard concerns regarding CRS and neurotoxicity, there are additional safety concerns relative to an allogeneic product. As mentioned above, an allogeneic product can cause two forms of alloreactivity: GvHD and host-vs-graft. Host-vs-graft is concerning only in that it may cause premature elimination of the allogeneic CAR-T cells, resulting in all of the previously discussed efficacy challenges related to poor persistence of product, but it does not create a safety concern.

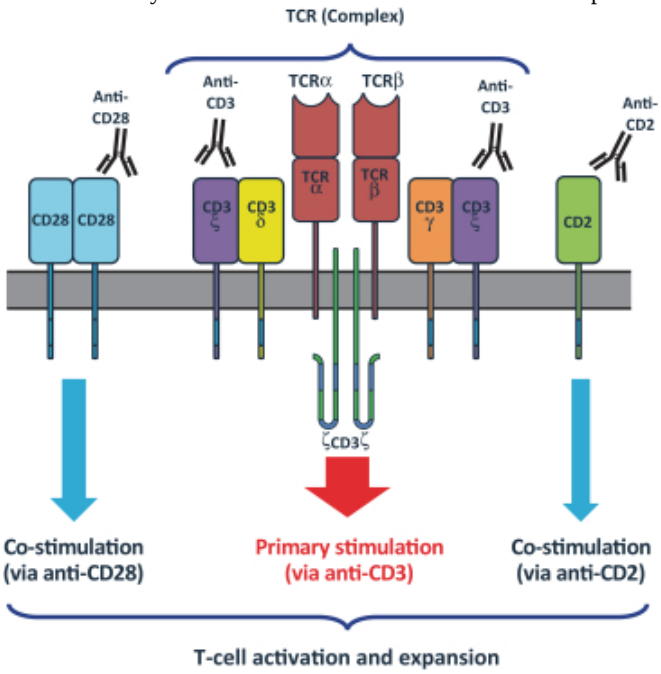
However, GvHD, a situation where the CAR-T cells are killing the healthy cells of the patient, is a serious and potentially fatal condition. Studies have suggested that the endogenous TCR is the molecule that needs to be eliminated in order to prevent GvHD. If this molecule is not completely eliminated in nearly 100% of CAR-T cells, then GvHD may become a problem. Our highly efficient Cas-CLOVER technology and subsequent purification step has resulted in cells that have TCR expression completely eliminated from at least 99% of the cells, a level we believe to be safely above that required to prevent GvHD.

An advantage of an allogeneic product is that many doses can be generated from a single individual donor or cell line. However, a potential disadvantage is that any detrimental mutation created during manufacturing would be potentially present in doses given to many patients, as opposed to an autologous product where this risk is limited to the individual patient. Therefore, it is especially important to minimize or completely prevent unwanted off-target mutations. It is well known that some gene editing technologies, such as CRISPR, have the possibility of creating unwanted mutations. In preclinical testing, our Cas-CLOVER technology has shown precise site-specificity, having no or very little propensity for creating off-target mutations. Based on our own preclinical data and previously published results on other fully dimeric CRISPR systems, we believe Cas-CLOVER is the most specific gene editing method available.

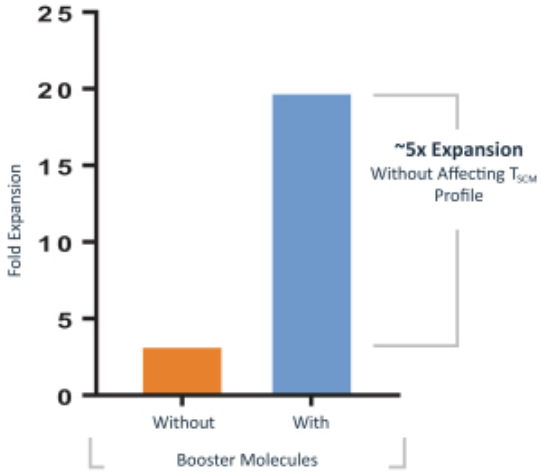
Commercial Scalability

A fully allogeneic CAR-T product would offer the possibility of significant time and cost savings in manufacturing, thereby greatly decreasing the cost per dose and increasing patient accessibility. Nonetheless, a manufacturing process must still be run on individual donor or cell line material in order to create a fixed number of doses of an allogeneic product. One of the most expensive parts of a manufacturing run for viral-based manufacturing methods is the virus itself. The piggyBac manufacturing system uses only GMP DNA and RNA without the need for GMP virus. We believe this will result in product candidates that are significantly cheaper to produce, even in the context of an allogeneic CAR-T product. Furthermore, the development and manufacturing timelines for piggyBac are shorter than those for virus, meaning one can move from product concept to GMP material more quickly. As an example, we moved P-BCMA-101 from product concept to the first patient dosed in a clinical trial in less than two years, and we believe we can apply these learnings to meet or exceed these timelines for future product candidates.

Genetic modification of the TCR, necessary to avoid GvHD as discussed previously, creates T cells that may be difficult to expand during the manufacturing process. TCR is commonly used as a key receptor for T cell stimulation in most autologous CAR-T manufacturing strategies. However, in allogeneic strategies, knockout of any single component of the TCR causes loss of the entire TCR complex from the surface of the engineered T cell, thereby significantly reducing its responsiveness to anti-CD3 antibodies during manufacturing. These consequences of eliminating the TCR and other genetic modifications have been commonly referred to as the "Allo Tax." The TCR complex is depicted in the figure below.



We have developed proprietary booster molecules that have the potential to overcome this issue, while retaining and potentially increasing the percentage of T_{SCM} cells in the final product. Booster molecules are an RNA-based technology introduced to T cells during the manufacturing process, which results in transient expression of a receptor on the surface of T cells that allows the cells to respond to antibody-based activator molecules, resulting in significant expansion of the cells without causing maturation or exhaustion of the cells. The use of a proprietary booster molecule resulted in enhanced expansion and yield, resulting in the production of more than five-fold the number of cells than without the booster molecule from a single manufacturing run (see figure below).



We believe that we can create fully allogeneic product candidates, such as P-BCMA-ALLO1, P-PSMA-ALLO1 and P-MUC1C-ALLO1, that retain a profile that is comparable to their corresponding autologous products, but with the ability to create enough doses to potentially treat hundreds of patients from a single manufacturing run.

Our CAR-T Product Candidate Pipeline

We believe we are particularly well-positioned to drive the continued advancement of CAR-T therapies in oncology. Our proprietary non-viral, gene engineering technologies are designed to address some of the greatest challenges to the successful implementation and commercialization of CAR-T therapies. We have built a wholly owned pipeline of autologous and allogeneic CAR-T product candidates, initially focused on the treatment of hematological malignancies and solid tumors.

P-BCMA-101: Autologous CAR-T for Multiple Myeloma

Overview

P-BCMA-101, our most advanced product candidate, is an autologous CAR-T therapy being developed for the treatment of patients with relapsed/refractory multiple myeloma. P-BCMA-101 targets BCMA, which is expressed on essentially all multiple myeloma cells. P-BCMA-101 utilizes several of our proprietary CAR technologies, including an anti-BCMA CAR molecule gene, a human DHFR gene, which is used to manufacture a highly purified product, as well a safety switch gene, which we believe allows elimination of some or all of the P-BCMA-101 cells following treatment if desired by the clinician. All components of the P-BCMA-101 transgene are comprised of fully human sequences. We are currently enrolling in an expanded dose escalation Phase 1 clinical trial and plan to continue enrollment in a potentially registrational Phase 2 clinical trial later this year.

The P-BCMA-101 CAR-T molecule utilizes an anti-BCMA Centyrin protein as the binding molecule, rather than an scFv antibody fragment used in most other CAR-T therapies. Centyrins, like antibody fragments, have high binding affinities and are target specific. Centyrins are also stable on the cell surface and do not form multimers, which we believe render them resistant to tonic signaling and T cell exhaustion.

P-BCMA-101 is engineered using our piggyBac DNA Modification System. PiggyBac modification of human T cells requires only piggyBac transposon transgene DNA and RNA encoding piggyBac transposase, the enzyme that specifically mobilizes piggyBac transposon DNA, thereby eliminating the need for viral vectors and resulting in significant time and cost savings in manufacturing. P-BCMA-101 is produced with our proprietary manufacturing system that results in a highly purified product comprised of a high percentage of T_{SCM} cells, which we believe will drive more gradual tumor killing, thereby inducing less inflammatory cytokine response and improving the tolerability profile of our CAR-T product candidates relative to those of existing CAR-T therapies manufactured using viral methods.

Target Indication

Multiple myeloma is a deadly form of blood cancer that develops from abnormal plasma cells, a type of immune cell that is typically responsible for secreting antibodies to fight infection. The underlying cause of multiple myeloma is unknown, but it affects patients by creating abnormal plasma cells that secrete high levels of antibodies, or fragments of antibodies, resulting in kidney and other organ malfunction that is ultimately fatal. It can also cause overproduction of abnormal plasma cells in the blood and tumor masses called plasmacytomas in the bone marrow or soft tissue.

There are approximately 100,000 patients suffering from multiple myeloma in the United States, with 30,000 new cases and nearly 13,000 deaths from the disease annually. It occurs more commonly in men than in women, typically affecting older adults, with the average age of onset of approximately 66 years. The current treatment paradigm in multiple myeloma begins with chemotherapy, proteasome inhibitors and immunomodulatory imide drugs, or IMiDs. The great majority of patients become refractory to these drugs and/or relapse, creating a high unmet need for treatments for relapsed/refractory patients. After failing proteasome inhibitors and IMiDs, patients typically resort to intensive chemotherapy regimens, with or without autologous stem cell transplant, or move to palliative care. Multiple myeloma is rarely cured, with the great majority of patients dying from the disease. Without treatment, the typical life span of a multiple myeloma patient is approximately seven months, while approximately half of those treated under the current regimens survive for five years after diagnosis. We believe P-BCMA-101, if successful in the clinic, can dramatically increase survival, as well as quality of life for relapsed/refractory multiple myeloma patients.

Clinical Data

The primary objectives of the Phase 1 clinical trial are to evaluate safety and any dose limiting toxicities, or DLTs, and determine the maximum tolerated dose, or MTD, of a single-dose infusion of P-BCMA-101 in adult patients with multiple myeloma who are relapsed and/or refractory to conventional therapy. In addition, we are assessing anti-myeloma response activity using the International Myeloma Working Group, or IMWG, criteria.

We initially focused on enrolling patients with relapsed/refractory multiple myeloma who have received at least three prior lines of therapy, including a proteasome inhibitor and an IMiD, and/or who are double refractory to a proteasome inhibitor and an IMiD. In 2019 we expanded the Phase 1 clinical trial to allow us to evaluate additional novel methods of treatment with CAR-T cells, including cyclic dosing or combinations with other agents. This expansion portion of the study is ongoing.

The original Phase 1 protocol allowed for enrollment of up to 40 adult subjects with multiple myeloma across five cohorts, using a standard 3 + 3 dose-escalation design. Eligible subjects who enroll in the study

undergo leukapheresis to collect T cells for P-BCMA-101 manufacturing. Before administering the P-BCMA-101 product candidate, subjects received a standard conditioning lymphodepletion chemotherapy regimen of 300 mg/m^2 of cyclophosphamide and 30 mg/m^2 of fludarabine intravenously daily for three consecutive days, followed in two days by a single infusion of P-BCMA-101. Patients are then assessed for safety and efficacy for up to 15 years. Five additional exploratory cohorts were subsequently added to test the novel treatment regimens, allowing for enrollment of up to 80 additional patients for a total of up to 120 in the Phase 1 clinical trial. Each exploratory cohort allows for the same 3+3 dose escalation, but additionally assesses nanoplasmid manufactured P-BCMA-101, P-BCMA-101 given as 2-3 infusions each separated by 2 weeks, and/or administration of rituximab or lenalidomide before and after P-BCMA-101. Between late 2019 and early 2020, we transferred the P-BCMA-101 manufacturing process to a new site of our CMO, Lonza, and introduced process modifications designed to improve manufacturing performance. P-BCMA-101 product manufactured at this new facility and with the process modifications will be used for the remainder of Phase 1 expansion trial and the Phase 2 clinical trial.

We initiated the Phase 2 clinical trial in June 2019. Patients enrolled in the Phase 2 clinical trial will undergo the same management and assessments conducted during the Phase 1 clinical trial, with the intent of demonstrating a significant response rate and duration of response by IMWG criteria to support a BLA submission for P-BCMA-101 for the treatment of multiple myeloma. We are seeking insights from our ongoing Phase 1 dose exploration study, which we expect to have in the second half of 2020 before fully accelerating enrollment in the Phase 2 clinical trial using the methods determined to be optimal in the Phase 1 expansion cohorts. We expect that the Phase 2 clinical trial will enroll 112 patients.

P-BCMA-101 Phase 1 Clinical Trial: Interim Findings

Interim data from patients enrolled under the original Phase 1 protocol are presented below. As of the cutoff date of January 31, 2020, 34 evaluable patients had been treated across five dose cohorts with no DLTs observed. Patients were treated in escalating dose cohorts based on weight as set forth in the following table, with the average total number of administered CAR-T cells partitioned into the dose groups indicated below:

34 Patients Treated in 5 Cohorts/Dose Groups

		Total CAR-T cells administered/dose group	
Cohorts Assessed	cells/kg	Mean (Min/Max) x 10^6	patients (#)
1	0.75 x 10^6	**51 (48/55)**	**3**
2	2 x 10^6	**152 (118/238)**	**8**
3	6 x 10^6	**466 (345/510)**	**9**
4	10 x 10^6	**847 (700/980)**	**5**
5	15 x 10^6	**1247 (1013/1545)**	**9**

The median enrolled patient age was 60, with 61% of patients considered high-risk, including those with high-risk cytogenetics. The majority of patients received eight or more prior lines of therapy and all patients had received at least one proteasome inhibitor and at least one IMiD. 91% of these patients had received daratumumab and 59% of the patients had received an autologous stem cell transplant.

Enrolled patient demographic and characteristic data are presented in the figure below:

Parameter (n=34)	
Median (min, max) age, y	60 (42, 74)
Male, n (%)	24 (71)
Median (min, max) time since diagnosis, y	4.7 (1.6, 13.9)
High-risk, n (%)	21 (62)
ECOG PS, n (%)	
0	13 (38)
1	21 (62)
Median (min, max) prior regimens	8 (3, 18)

	Exposed	Refractory
proteasome inhibitor, n (%)	34 (100)	26 (76)
bortezomib	33 (97)	15 (44)
carfilzomib	30 (88)	20 (59)
IMiD, n (%)	34 (100)	28 (82)
lenalidomide	34 (100)	25 (74)
pomalidomide	31 (91)	20 (59)
daratumumab, n (%)	31 (91)	24 (71)
Prior autologous SCT	20 (59)	

Interim Safety Results

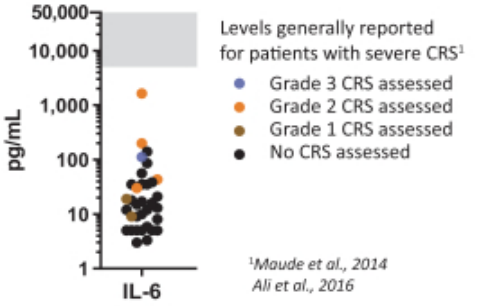
Patients treated as of the January 31, 2020 data cutoff date and evaluable for safety results received a single dose of P-BCMA-101 following a standard conditioning regimen of lymphodepleting chemotherapy consisting of cyclophosphamide and fludarabine. The table below summarizes treatment-emergent adverse events, or TEAEs, considered particularly relevant to CAR-T cell products and lymphodepletion regimens. Grade 1 toxicities are generally considered mild, Grade 2 toxicities are moderate, Grade 3 toxicities are severe, Grade 4 toxicities are potentially life threatening and Grade 5 result in death. No patient deaths had been reported as related to treatment with P-BCMA-101.

No DLTs had been reported as of the data cutoff date. No patient was admitted to an intensive care unit, nor has the safety switch been used in any patient. Limited CRS has been reported with P-BCMA-101. As seen in the chart below, as of the January 31, 2020 data cutoff date, seven cases of CRS (20.6%) had been reported. The rates of CRS were sequentially higher in each of cohorts 3, 4 and 5, indicating a potential correlation between dose level and CRS. One case of neurotoxicity was observed in a patient with mental status changes prior to treatment who was treated with an interleukin-6, or IL-6, inhibitor and steroids. Peak measured IL-6 levels for these patients, a suspected correlate marker for CRS, were far below the levels typically associated with severe CRS.

Cytokine Release Syndrome Parameters

Parameter	Dosed Patients (n=34)
Patients with a CRS event, n	7 (20.6%)
Maximum CRS grade	
None	27 (79.4%)
1	2 (5.9%)
2	4 (11.8%)
3	1 (2.9%)
Median time to onset, d (min, max)	7.0 (1, 25)
Median duration, d (min, max)	5.0 (1, 19)

Peak IL-6 Levels After P-BCMA-101



Other than CRS, reported TEAEs and SAEs included cytopenias, infections and constitutional symptoms which are consistent with conditioning lymphodepletion therapy and the underlying disease. No patient deaths have been reported as related to treatment with P-BCMA-101 as of the data cutoff date.

Treatment-Emergent Adverse Events (n=34)

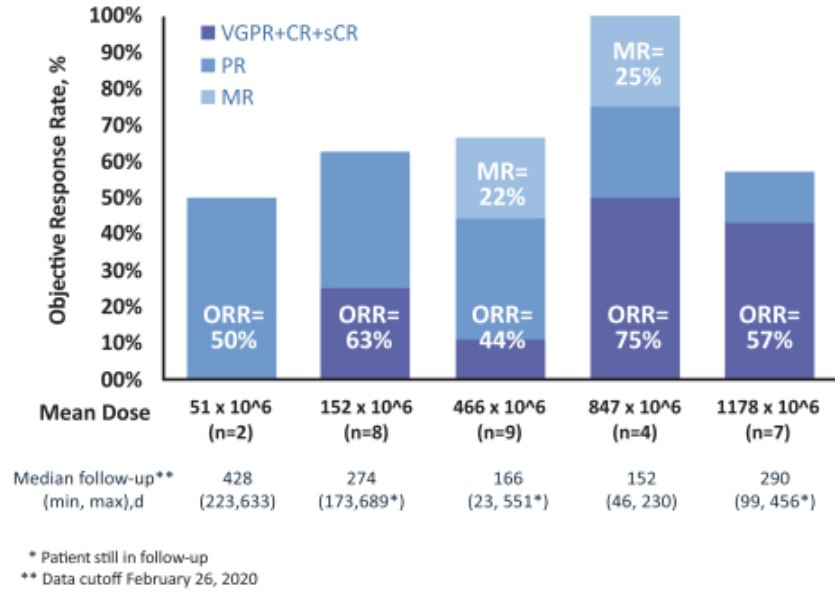
TEAE, n (%)	Overall	≥ Grade 3
Dose Limiting Toxicity (DLT)[a]	0	0
Cytokine Release Syndrome[a]	7 (20.6%)	1 (2.9%)
Neurotoxicity[a]	1 (2.9%)	1 (2.9%)
Neutropenia/Neutrophil count decreased[b]	31 (91.2)	28 (82.4)
Thrombocytopenia/Platelet count decreased[b]	14 (41.2)	11 (32.4)
Anemia	15 (44.1)	11 (32.4)
Infection		
Overall	20 (55.9)	9 (26.5)
First month	7 (20.6)	2 (5.9)

[a]By investigator assessment
[b]Subject counted once for either term

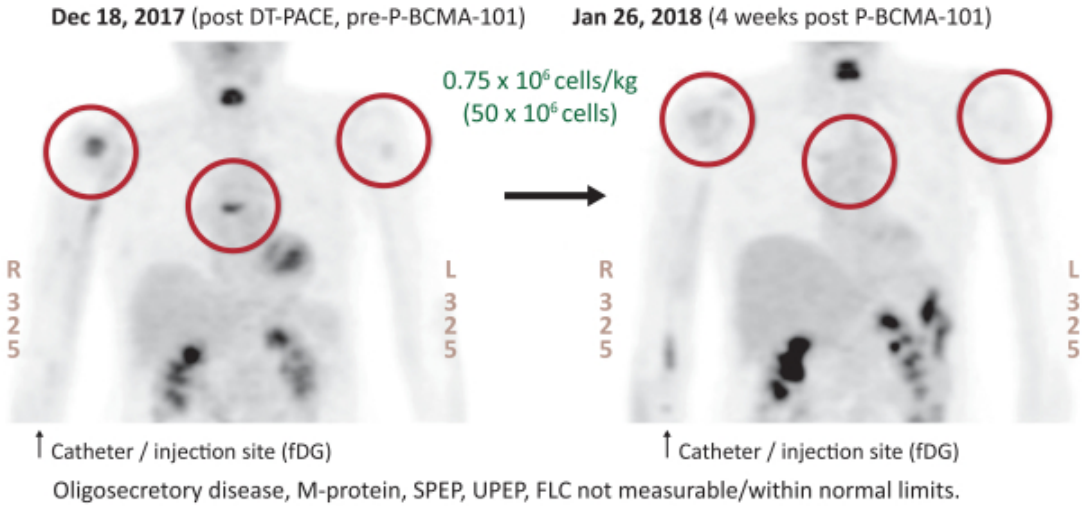
Interim Response Results

As of February 26, 2020, 30 patients treated with P-BCMA-101 were evaluable for response by International Myeloma Working Group, or IMWG, criteria. Four additional patients were not evaluable by IMWG criteria due to insufficient myeloma protein markers at the time of treatment.

Of these 30 evaluable patients, 20 showed meaningful responses, including eight patients who demonstrated a sCR, CR, or very good partial response, or VGPR, nine patients who demonstrated partial response, or PR, and three patients who demonstrated minor response, or MR. The following chart presents the best objective response rate, or ORR, for IMWG evaluable patients by dose group, with a breakdown by depth of best response:



Of note, of the three patients treated in Cohort 1, one patient was only evaluable by positron emission tomography, or PET, scan and was not evaluable by m-protein-based IMWG criteria at the time of treatment. While not included in the statistics above, the patient had a notable response by PET. The images below are the patient scans at baseline and again at four weeks post P-BCMA-101 treatment with plasmacytomas (tumors) indicated with circles, visibly illustrating the activity of the product candidate:



Under the original Phase 1 protocol, we had provided for the testing of minimal residual disease, or MRD, only after patients reached a CR. In the time since the original Phase 1 protocol was established, MRD has become better understood to correlate with CRs and the risk for relapse. As a result, we modified the protocol to test patient MRD status earlier in the process and that testing is underway. Based on a limited number of samples as of January 8, 2020, five of 21 Phase 1 patients had at least one sample test negative for MRD.

Given the tolerability observed in our trial, we expanded the current Phase 1 clinical trial to explore additional dosing regimens, including administering the product over several cycles during the first month after lymphodepletion conditioning and adding rituximab to the preconditioning regimen, which we believe may further improve response rates, depth of response and/or durability of response.

In addition, we have recently observed molecular evidence of our CAR-T modified cells in at least one patient from Cohort 3 at approximately 18 months post-infusion, who was in a sCR as of March 31, 2020. While this finding is limited at this time, it represents clinical evidence that P-BCMA-101, which is comprised of a high percentage of T_{SCM} cells, may be capable of engraftment and long-term control in at least some patients, a finding that we observed in preclinical animal models.

Future Clinical Development Strategy

Given the clinical results generated to date, we plan to complete additional dose exploration in the Phase 1 trial before we accelerate enrollment in the Phase 2 clinical trial. The Phase 2 clinical trial will evaluate response rates and duration of response, the same endpoints used for a number of approved multiple myeloma therapies, such as daratumumab, bortezomib and carfilzomib, in an effort to support a biologics license application, or BLA, submission. Subsequently, we plan to conduct additional Phase 2 and comparative Phase 3 clinical trials to support approval, if required, and label expansion into earlier lines of monotherapy and combination therapies. Should data from our P-BCMA-ALLO1 program, which are anticipated to begin to be available in late 2020 or early 2021, meet our expectations, we would consider reallocating our efforts and resources to advancing our allogeneic program. P-BCMA-101 was granted FDA Regenerative Medicine Advanced therapy Designation in November 2018 and Orphan Drug Designation in May 2019.

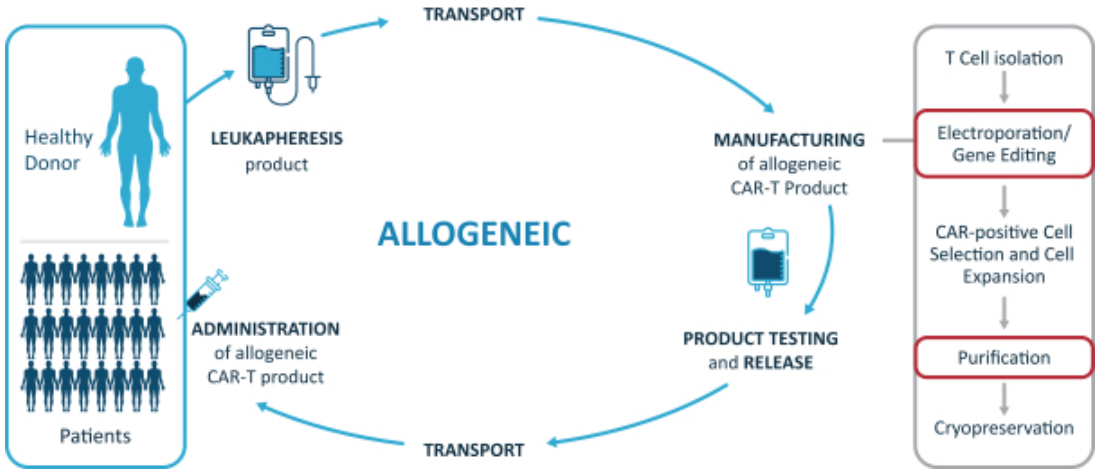
P-BCMA-ALLO1: Allogeneic CAR-T in Multiple Myeloma

Overview

P-BCMA-ALLO1 is a fully allogeneic CAR-T product candidate being developed to treat multiple myeloma. P-BCMA-ALLO1 is in late preclinical development and we anticipate an IND filing and initiation of a Phase 1 clinical trial for P-BCMA-ALLO1 by late 2020 or early 2021.

P-BCMA-ALLO1 is our first fully allogeneic CAR-T product candidate derived from healthy donor cells, giving it the potential to be used as an off-the-shelf therapy for unrelated multiple myeloma patients. We believe our technology and manufacturing processes are ideally suited to develop allogeneic CAR-T product candidates with reduced alloreactivity and without unwanted mutations. We use our proprietary Cas-CLOVER gene editing tool to genetically engineer T cells in order to reduce or eliminate both GvHD and host-vs-graft alloreactivity. Cas-CLOVER is designed to efficiently edit resting T cells and has demonstrated precise specificity, thereby limiting unwanted off-target mutations and helping to improve tolerability.

The manufacturing process for P-BCMA-ALLO1 shares characteristics with P-BCMA-101, differentiated only by the process of a multiplexed gene editing step and a purification step. Both product candidates include a DHFR gene used to manufacture a highly purified product that is essentially 100% CAR-positive.

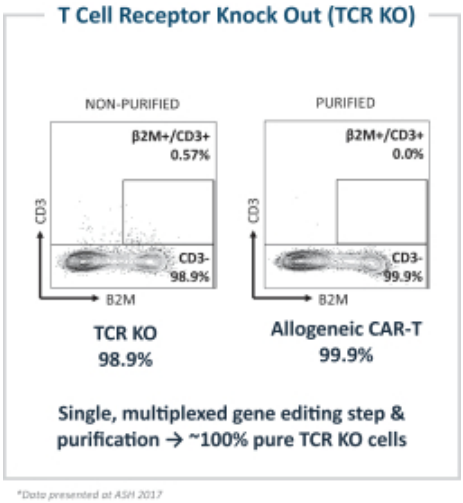


We believe an allogeneic product with a profile similar to an autologous product would have significant advantages in terms of cost and commercial reach, with the ability to treat potentially hundreds of patients from a single manufacturing run.

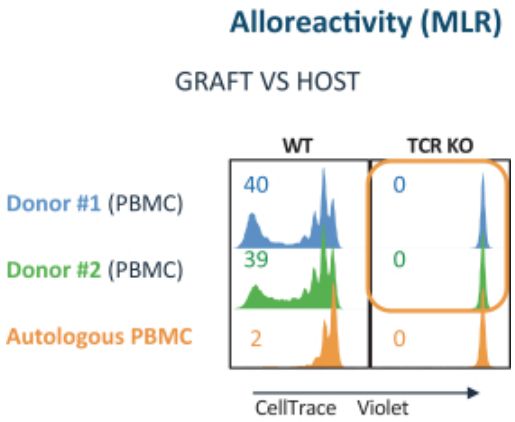
Preclinical Data

In our preclinical studies for our allogeneic product candidates we undertake gene editing to evaluate our ability to address both graft-vs-host and host-vs-graft reactions. We used our proprietary Cas-CLOVER gene editing platform, which has the ability to multiplex and efficiently edit resting T cells, to eliminate expression of cell surface proteins that are responsible for alloreactivity in a single gene editing step, followed by a purification step.

The figure below demonstrates our highly efficient gene editing to disrupt the T cell receptor ß chain (TCRß) gene. In the experiment represented below, complete elimination of all TCR expression occurred in over 90% of cells with a single gene editing step and, after a single purification step, we were able to achieve a product candidate with >99.9% of cells with a TCR knockout. For P-BCMA-ALLO1, we also address host-vs-graft alloreactivity in the same multiplexed gene editing step by disrupting the Beta-2 Microglobulin gene (MHC1). With a single gene editing step we typically eliminate approximately 50-60% of MHC1. For P-BCMA-ALLO1 we do not purify for MHC1 knockout so that the final product is on average approximately 60% MHC1 knockout and >99.9% TCR knockout.

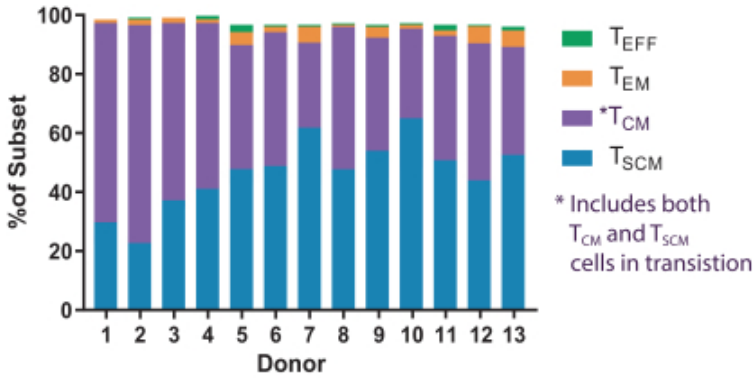


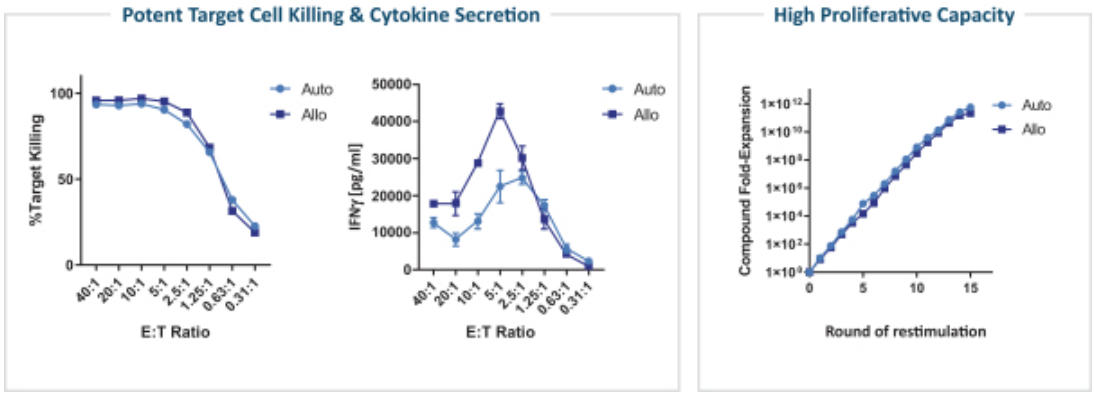
Multiple preclinical experiments demonstrate the potential of P-BCMA-ALLO1 to reduce or eliminate alloreactivity. The below figure represents an experiment for graft-vs-host alloreactivity, which is normally mediated by the intact TCR. The panel shows results of a mixed lymphocyte reaction, or MLR, where alloreactivity was demonstrated by a peak forming on the left-hand side of the graph. Peaks were clearly seen when non-genetically modified cells, or wild type, or WT, were mixed with cells from an unrelated donor, but not when mixed with cells from the same donor. Alloreactivity was eliminated when testing the P-BCMA-ALLO1 cells.



The cells used in MLR assays were WT cells or TCR KO cells, and peripheral blood mononuclear cells, or PBMC, from either the same donor (Autologous PBMC) or PBMC from allogeneic donors (Donor #1 and Donor #2). These cells were labeled with one of two cytosolic dyes: CellTrace Violet for the WT or TCR KO cells. A portion of each labeled cell type was irradiated (3,000 rads) to arrest proliferation and possibly increase immunogenicity. GvHD reactions were modeled by co-culturing non-irradiated WT or TCR KO cells with irradiated PBMC. In the 12-day proliferation MLR assay, the response of the non-irradiated cell type was assessed by flow cytometry and visualized as histograms in which the undivided cells retain high levels of cytosolic dye and thus appear on the right-hand side of the histogram and those cells that have undergone a proliferative response will dilute the cytosolic dye with each division, thereby appearing in peaks shifted to the left. Cells that have divided more than six times are beyond the sensitivity of this experiment and accumulate in one peak on the far left of the histogram. The frequency (average, n=4) of the cells with fully diluted cytosolic dye appears above the histogram in each panel.

One of our goals for our P-BCMA-ALLO1 product candidate is to preserve the same high percentage of T_{SCM} cells in the final product that we have observed with our P-BCMA-101 and solid tumor autologous product candidates. Our first 13 research-scale manufacturing runs for P-BCMA-ALLO1 resulted in high levels of T_{SCM} as shown in the figure below.



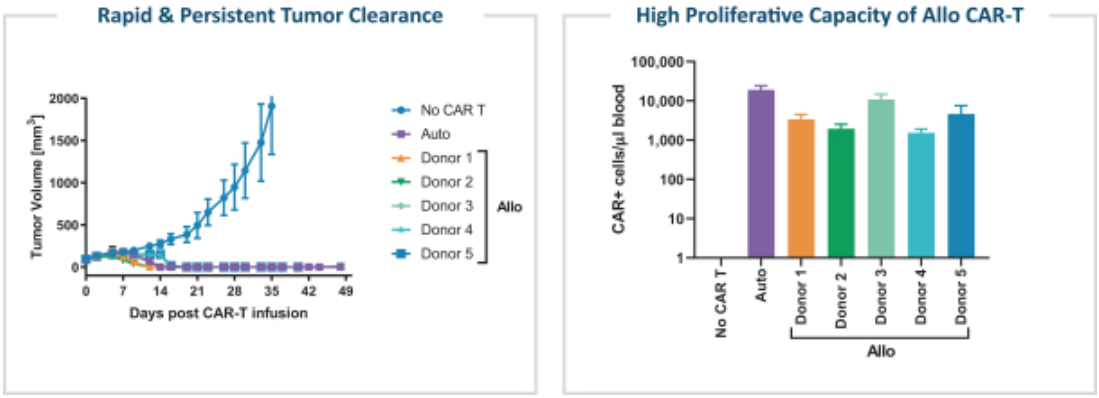


Further, we have demonstrated that in preclinical models P-BCMA-ALLO1 had comparable intensity and specificity of killing target cells as an autologus version, equal or better cytokine secretion, as well as equivalent proliferative capacity.

Cytotoxicity was measured in a standard in vitro killing assay. Primary healthy donor human T cells were taken through one of two production processes: Autologous, or Auto, cells were generated using the P-BCMA-101 production process and allogeneic, or Allo, cells were generated using the P-BCMA-ALLO1 manufacturing process. The two T cell products were mixed at effector to target ratios shown with target cells that were BCMA-positive. In this assay, both target cell lines also express the luciferase protein and the amount of live and intact target cells in culture can be indirectly assessed as a function of the luciferase enzyme that they contain. After 48 hours of co-incubation, cytotoxic activity by the T cell products is evident as a decrease in the amount of live and intact target cells and expressed as data normalized to the same value for target cells cultured alone (i.e., 0% cytotoxicity is seen without T cells). The data above demonstrated that Auto and Allo were specific in killing the BCMA-positive cell lines. Moreover, the specific killing increased with higher effector to target ratios and the fact that both Auto and Allo products demonstrated virtually identical trends at each effector to target ratio indicates that both products have similar intensity and specificity of killing.

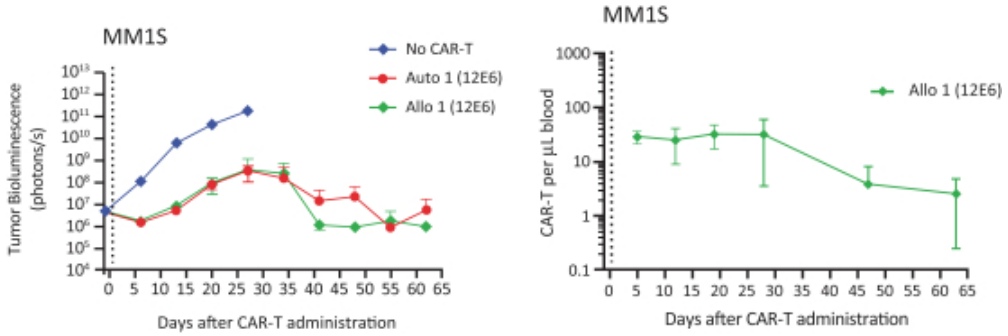
In the panel on the right in the figure above, proliferative capability of both Auto and Allo were assessed in an *in vitro* serial restimulation assay. Auto (CD3+) or Allo (CD3-) CAR-T cells, as described above, were thawed and then stimulated every 4-5 days with irradiated RPMI-8226 tumor cells which express the CAR target antigen, BCMA. At each stimulation, CAR-T cells were counted and reseeded with target cells at a 2:1 effector to target ratio. This assay demonstrates that CAR-T cells, both autologous and allogeneic, made with piggyBac have a high proliferative capacity and are able to expand to high cell numbers in response to tumor antigen. Importantly, it also shows that loss of the TCR complex in our P-BCMA-ALLO1 production process does not negatively affect the ability of our CAR-T cells to proliferate in response to antigen as our allogeneic cells could expand to a similar extent and for a similar length of time as CD3-replete autologous CAR-T product cells.

We also have demonstrated that P-BCMA-ALLO1 performs equal to or better than an autologous BCMA product generated from a healthy donor in an *in vivo* mouse model. As noted in the left panel of the figure below, we took five random healthy donors to generate P-BCMA-ALLO1 (Donor 1 to Donor 5) and compared those allogeneic products to an autologous BCMA CAR-T product produced from a healthy donor. As shown, all of the allogeneic products performed at least as well as the autologous product. In the panel on the right, we also compare the proliferative capacity of P-BCMA-ALLO1 to an autologous BCMA CAR-T product produced from a healthy donor.



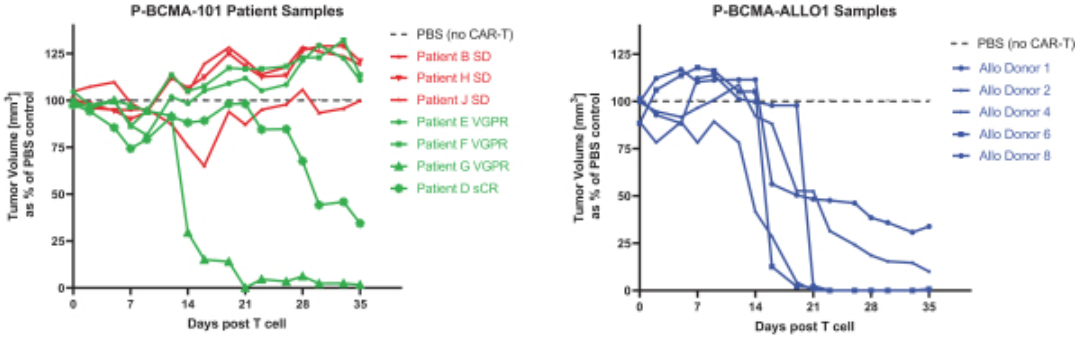
P-BCMA-ALLO1 exhibited potent anti-tumor effects in an *in vivo* mouse model of multiple myeloma. P-BCMA-ALLO1 was tested in alongside with healthy donor non-edited cells (Auto, CAR-positive/TCR-positive) in an *in vivo* model of multiple myeloma tumor control. Immunocompromised mice were implanted subcutaneously with 1 x 10e7 RPMI-8226 BCMA+ tumor cells and tumors were established for 7 days before injection with 1 x 10e7 CAR-T cells. P-BCMA-ALLO1 exhibited potent and sustained anti-tumor efficacy that was comparable to non-edited control CAR-T cells. P-BCMA-ALLO1 also demonstrated robust *in vivo* proliferation that could be detected in the blood of treated animals by Day 14 after T cell administration. The peak of expansion (Day 14) correlated with the timing of tumor control observed and was similar to expansion levels observed for TCR-positive autologous CAR-T cells.

P-BCMA-ALLO1 also exhibited potent anti-tumor effects in an *in vivo* mouse model of multiple myeloma known as the MM1S model shown in the figure below. MM1S is an aggressive model of relapsed/refractory multiple myeloma where relapses after initial control of the tumor can be observed. Immunocompromised (NSG) mice were implanted intravenously with 3 x 10E5 MM1S tumor cells and tumors were established for 7 days before injection with a standard dose of 12 x 10E6 CAR-T cells. P-BCMA-ALLO1 (Allo) exhibited potent and sustained anti-tumor efficacy that was comparable to non-edited control autologous CAR-T cells (Auto) at the same single dose. P-BCMA-ALLO1 also showed persistence in this model as cells could be detected in the blood of treated animals at greater than 60 days post-CAR-T cell administration.

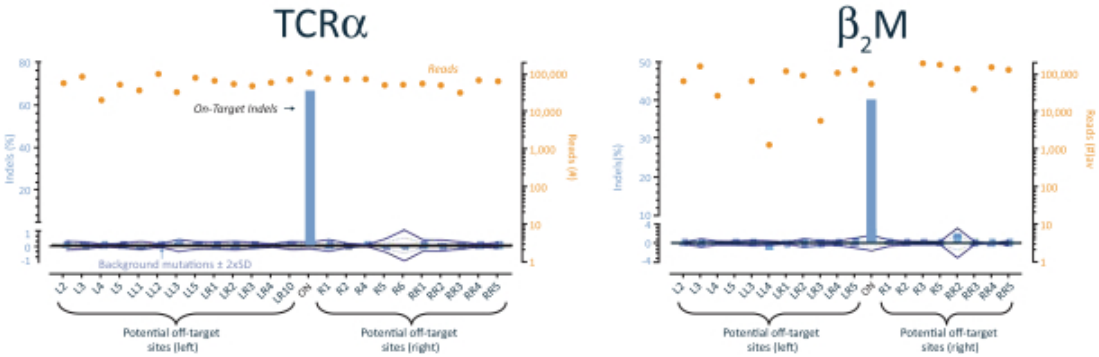


In addition, we have demonstrated that P-BCMA-ALLO1 performs equal to or better than autologous P-BCMA-101 products generated from cancer patients in an *in vivo* mouse model with a very high positive predictive value for how a product candidate will perform in the clinic. In the same mouse model (figure below), we used five random healthy donors to create P-BCMA-ALLO1 and compared those allogeneic products to seven P-BCMA-101 patient products, representative of patients that responded well (green; VGPR or sCR) or did

not respond (red; SD) in the clinic. As shown, all the allogeneic products performed at least as well as the P-BCMA-101 products that resulted in either a VGPR or sCR in the clinic. Two of the four P-BCMA-101 products that demonstrated favorable outcomes in the clinic were able to control tumor in the mouse model. None of the three P-BCMA-101 patient products that resulted in SD in the clinic were able to control tumor in the mouse model.



Key to the creation of an allogeneic product is the specificity of the gene editing, without causing unwanted cuts or mutations in the DNA. Importantly, we demonstrated that Cas-CLOVER exhibited a high degree of specificity for on-target cutting during the cutting of gene targets in the production of P-BCMA-ALLO1. We performed deep sequencing of numerous top-ranked predicted off-target sites corresponding to these gene targets, and we have not observed any evidence of off-target activity:



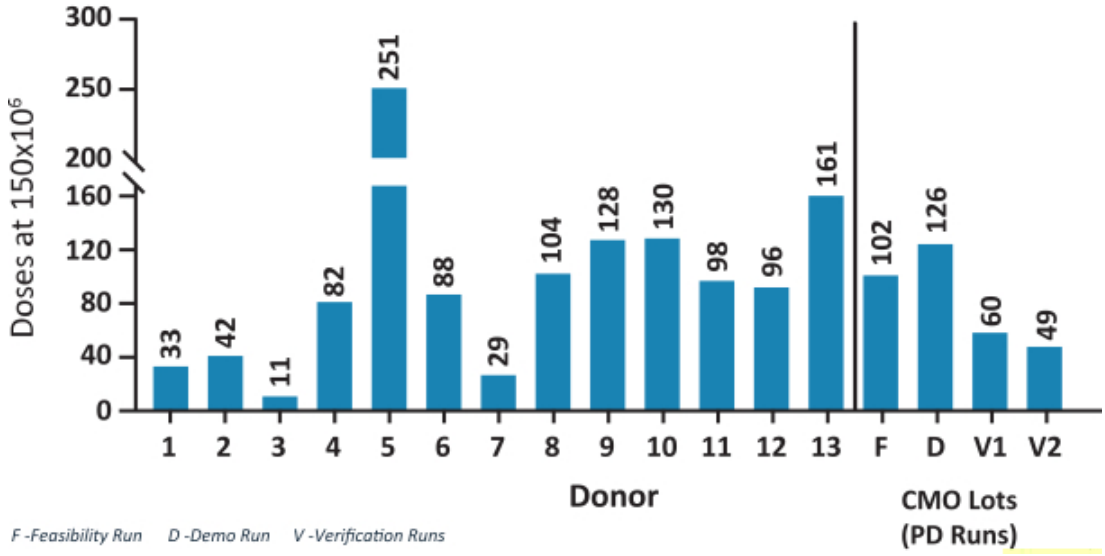
Cas-CLOVER can be used to efficiently knock-out several human T cell surface marker genes, such as TCRß and ß-2 Microglobulin (ß$_2$M). To determine the level of off-target activity by Cas-CLOVER, next generation sequencing was used to investigate T cells gene-edited for TCRß or ß$_2$M genes. To do so, an algorithm was designed to predict all potential off-target sites of high DNA homology throughout the whole human genome for Cas-CLOVER gRNA. As Cas-CLOVER functions as an obligate homodimer, there are several hypothetical possibilities of dimer formation including left (L) gRNA + right (R) gRNA heterodimer, L + L and R + R homodimers, as well as L only and R only. On-target site and the top predicted off-target site amplicons from the above five different hypothetical combinations were PCR-amplified and the amplicons were analyzed using the Illumina Mi-Seq platform for deep sequencing with approximately 30,000 to 100,000 coverage at each locus for the identification of insertions and/or deletion, or indels.

In the above figure, the right Y axis shows the deep sequencing coverage rate at each locus, whereas the left Y axis shows the percentage of indels. The dotted lines show the level of background mutation in the absence of gene editing while the solid line shows the 2 standard deviation error bar of the control. The bars show the

percentage of indels of all on- and off-target sites. These data show that the indels resulting at predicted potential off-target sites of high DNA homology are within the range of the background mutation rate of the non-edited negative control. Thus, next generation sequencing data confirmed that gene editing only occurs at target sites. Next generation sequencing data further showed that there is no off-target editing among the top predicted off-target sites.

We have developed proprietary booster molecules, which are an RNA-based technology introduced to T cells during the manufacturing process, results in transient expression of a receptor on the surface of T cells that is designed to allow the cells to respond to antibody-based activator molecules, resulting in significant expansion of the cells without causing maturation or exhaustion of the cells. Using booster molecules, we believe we can expand P-BCMA-ALLO1 cells to large numbers without losing any of the desirable cell attributes shown previously. In a preclinical study, we measured cell expansion of allogeneic CAR-T cells with and without the use of a booster molecule, and observed an approximately five times greater expansion during a single manufacturing run with the booster molecule, when compared to a manufacturing run without using a booster molecule. We continue to improve the booster molecule technology and other allogeneic manufacturing technologies and believe we will be able to significantly increase the number of doses generated per allogeneic manufacturing run in the future.

We estimate that we can generate enough cells from a single manufacturing run to treat dozens to hundreds of patients. Data from our first 13 random healthy donors selected only for minimal viral testing and put through our near clinical-scale manufacturing process and the first full-scale clinical manufacturing process at our CMO resulted in between 11 and 251 doses of 150M cells per dose, as shown below. We will continue to further optimize manufacturing and to identify donor characteristics that could be predictive of better performance.



Clinical Development Strategy

We anticipate an IND filing and initiation of a Phase 1 clinical trial for P-BCMA-ALLO1 in late 2020 or early 2021. The trial will be an open-label dose escalation trial enrolling up to 40 patients.

P-PSMA-101: Autologous CAR-T for metastatic castrate resistant prostate cancer

Overview

P-PSMA-101 is a solid tumor autologous CAR-T product candidate being developed to treat mCRPC. P-PSMA-101 targets cells that express PSMA, which is expressed on mCRPC cells. PSMA is involved in folate uptake and is thought to confer a proliferative advantage to PSMA-expressing tumor cells. Additionally, PSMA levels increase as tumor cells become androgen-independent, a hallmark of advancing prostate disease. Therefore, we believe that PSMA may be less susceptible to antigen escape. The IND for P-PSMA-101 has been filed and we have received authorization to proceed from the FDA. We are currently enrolling in a Phase 1 clinical trial and dosed the first patient in May 2020.

The piggyBac transposon transgene of the P-PSMA-101 product candidate differs from P-BCMA-101 only in the binding (Centyrin) portion of the CAR molecule used, thereby we believe helping to reduce development and manufacturing risk by leveraging the experience gained with P-BCMA-101. As with P-BCMA-101, P-PSMA-101 includes a DHFR gene used to manufacture a highly purified product. Also, as with P-BCMA-101, P-PSMA-101 is produced with our proprietary manufacturing system that results in a highly purified product with a cell composition comprised of a high percentage of T_{SCM} cells, with the goal of conveying numerous benefits over other CAR-T products manufactured using viral methods.

Target Indication

Prostate cancer is the fourth most common cancer globally and the second leading cause of cancer death among men in the United States, with a 60% occurrence rate in men over the age of 65. In the United States alone, there are approximately 2.8 million men living with prostate cancer, with approximately 40,000 new cases of prostate cancer estimated each year. The majority of prostate cancer patient deaths in the United States are due to mCRPC.

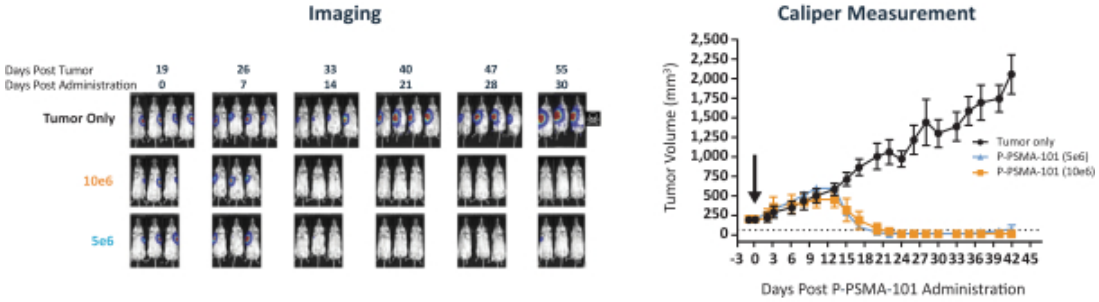
Treatment paradigms for prostate cancer vary based on the age of the patient at the time of diagnosis. Typical early treatment options for prostate cancer range from active surveillance, radiation therapy, cryotherapy, immunotherapy, hormone therapy and surgical treatment. For metastatic disease, the paradigm bifurcates between hormone naïve disease and castrate resistant prostate cancer, or CRPC. CRPC cases are typically treated with the chemotherapy drug docetaxel, and a choice of abiraterone, enzalutamide, cabaziltaxel and/or Radium-223. Typically, none of these therapies are curative.

Although five-year survival rates for patients with early prostate cancer are nearly 100%, a high unmet need for mCRPC remains, with a five-year survival rate of only approximately 30%. We believe P-PSMA-101, if successful in the clinic and approved, could dramatically increase survival, as well as quality of life for mCRPC patients.

Preclinical Data

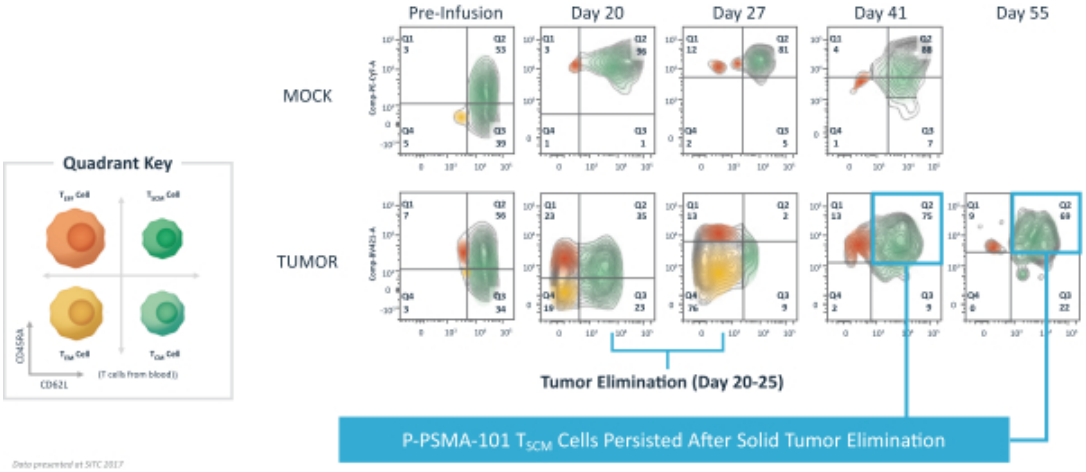
P-PSMA-101 resulted in the elimination of tumor cells to undetectable levels in 100% of animals, with one incidence of a relapse in the low dose cohort, in a preclinical model of mCRPC. This preclinical model involves the implantation of subcutaneous solid tumors comprised of a human mCRPC cell line (LNCaP (fLuc+)) in immuno-deficient mice. These tumors were well established to a size of at least 100 mm^3 before administration of P-PSMA-101. In the model shown below, we demonstrated elimination of tumors to below the limit of detection by both bioluminescence imaging measurements (left side of figure) or caliper measurements (right side of figure) in 100% of animals with both a standard dose of 10 million P-PSMA-101 cells per animal (10×10^6), as well as a low dose of five million cells per animal (5×10^6). One animal in the low dose cohort

relapsed later in the study. To our knowledge based on published literature, no other product candidate has shown complete solid tumor elimination in this preclinical model:



P-PSMA-101, comprised of a high percentage of T_{SCM} cells, expanded *in vivo* and gave rise to CAR-positive T cells that were more maturated, including T_{EFF} cells, which were detected in the peripheral blood at early timepoints, followed by a decrease in tumor burden to below detectable levels as measured by both bioluminescent imaging and caliper.

Consistent with our hypothesis, the short-lived, more maturated T cells were then eliminated, and the long-lived T_{SCM} cells engrafted and persisted and were the only cells detectible in the peripheral blood at later timepoints. Thus, even after solid tumor elimination, a population of P-PSMA-101 T_{SCM} cells persisted. The figures below show that in mice with no tumor, T_{SCM} cells engrafted and persisted without *in vivo* expansion and differentiation. In contrast, T_{SCM} cells expanded and differentiated in the presence of tumor in subject mice treated with P-PSMA-101, and continued to persist following solid tumor elimination:



Clinical Development Strategy

We filed an IND in late 2019 and received authorization to proceed to clinical trials in early 2020. We dosed our first patient in May 2020. The current Phase 1 protocol allows for enrollment of up to 40 adult subjects with mCRPC across four arms of up to five dose escalation cohorts each, using a standard 3 + 3 dose-escalation design. Eligible subjects who enroll in the trial undergo leukapheresis to collect T cells for P-PSMA-101 manufacturing. Before administering the P-PSMA-101 product candidate, subjects will receive a conditioning lymphodepletion chemotherapy regimen. In the first arm, the regimen will be 300 mg/m^2 of cyclophosphamide

and 30 mg/m2 of fludarabine intravenously daily for three consecutive days, followed in two days by a single infusion of P-PSMA-101. In a second arm, rituximab will be added to the lymphodepletion regimen. The remaining two arms will utilize these same lymphodepletion regimens, but multiple infusions of P-PSMA-101 will be administered in two week intervals, and the lymphodepletion regimen may be repeated every six weeks twice more. Patients will then be assessed for safety and efficacy for up to 15 years. Part 2 of the trial will allow expansion of selected cohorts to further characterize outcomes for a potential recommended Phase 2 dose. A Phase 2 part or additional exploratory cohorts may be added to the trial depending on the initial findings.

P-PSMA-ALLO1

P-PSMA-ALLO1 is an allogeneic CAR-T product candidate targeting PSMA and being developed to treat patients with mCRPC. We have designed P-PSMA-ALLO1 to be fully allogeneic, with genetic edits to eliminate or reduce both host-vs-graft and graft-vs-host potential reactions. We anticipate an IND filing and initiation of a Phase 1 clinical trial in 2022.

P-MUC1C-ALLO1: Allogeneic CAR-T in Multiple Solid Tumor Indications

Overview

P-MUC1C-ALLO1 is a preclinical allogeneic CAR-T product candidate with the potential to treat a wide range of solid tumor indications.

We used our proprietary piggyBac DNA Modification System to manufacture a highly purified P-MUC1C-ALLO1 product candidate containing a high percentage of T_{SCM} cells that we believe may be the key to developing a CAR-T therapy to treat solid tumors. We use our proprietary Cas-CLOVER platform to genetically engineer T cells in order to reduce or eliminate both GvHD and host versus graft alloreactivity.

P-MUC1C-ALLO1 is currently undergoing preclinical development and we anticipate an IND filing and initiation of a Phase 1 clinical trial in 2021.

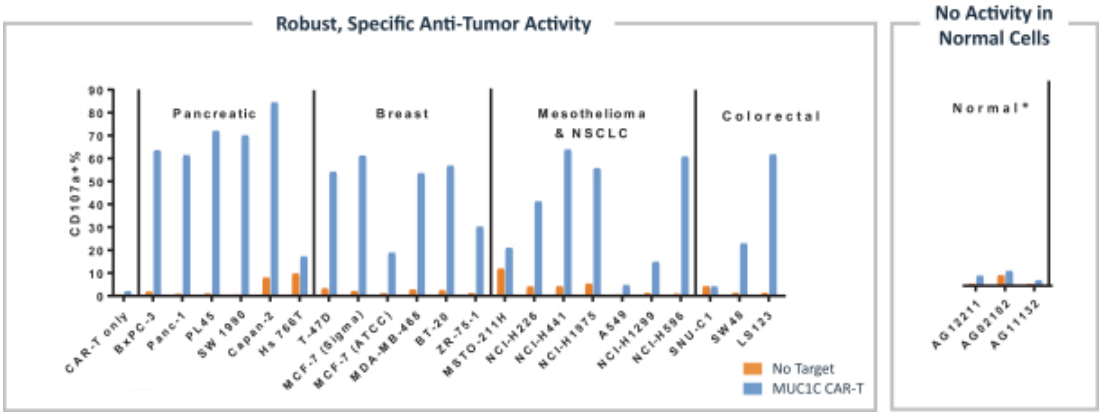
Target Indication

We intend to further evaluate and later determine clinical indications for initial development of P-MUC1C-ALLO1 in indications where MUC1 expression occurs. Approximately 90% of cancers derive from epithelial tissues, and among these cancers, a significant percentage express MUC1, including common cancers such as breast, colorectal, lung, ovarian, pancreatic, renal and other cancers.

Tumor Type	MUC1 Expression (%)
Breast	91
Colorectal	81
Esophageal	32
Gastric	77
H&N SCCa	82
Mesothelioma	75
Multiple myeloma	59
Nasopharyngeal	100
NSCLC	99
Ovarian	83
Prostate	79
Pancreatic	81
RCC	84

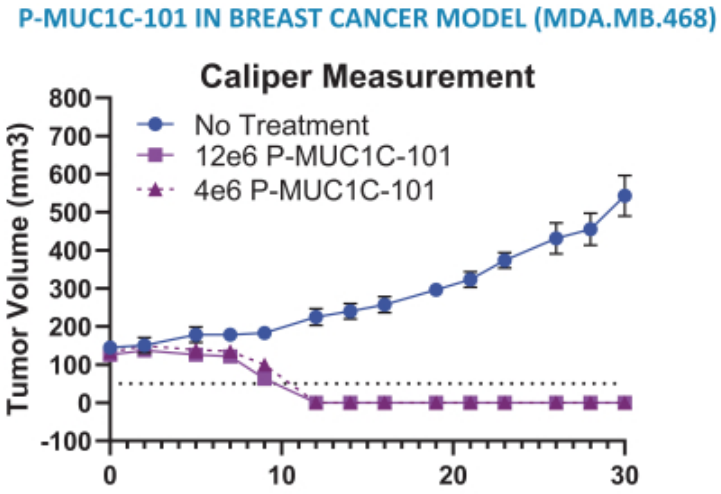
Preclinical Data

In our preclinical studies, an autologous MUC1C CAR-T showed robust anti-tumor activity against multiple tumor lines:

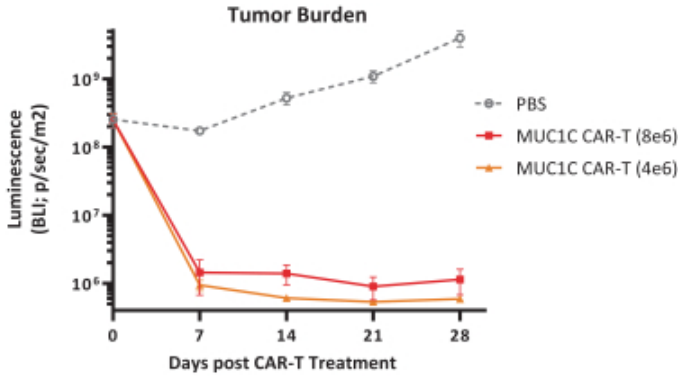


The autologous MUC1C CAR-T was evaluated for specificity and function using a standard T cell degranulation assay. Degranulation is a surrogate of T cell killing that can be easily measured by FACS staining for intracellular CD107a expression following co-culture with cells expressing target antigen. mRNA encoding the MUC1C CAR-T was delivered to pan T cells via electroporation and the cells were rested overnight to allow for translation and surface expression of the CAR. T cells expressing the MUC1C CAR-T were co-cultured for four to six hours with the indicated tumor cells. Six different cancer types were evaluated in these studies, including both solid and blood tumors. During the co-culture period, CD107a antibody was added to detect degranulation of T cells. The percentage of CD107a T cells is shown in the graph above and indicates tumor-specific activity. Degranulation frequency correlated highly with MUC1-C expression on the target tumor cells.

We tested an autologous MUC1C CAR-T in a preclinical xenograft model of triple-negative breast cancer in which immune deficient mice were implanted with a human MDA.MB.468 triple-negative breast cancer cell line. In this model, the MUC1C CAR-T also eliminated tumor cells to undetectable levels in both a standard and low dose arm, as shown below:



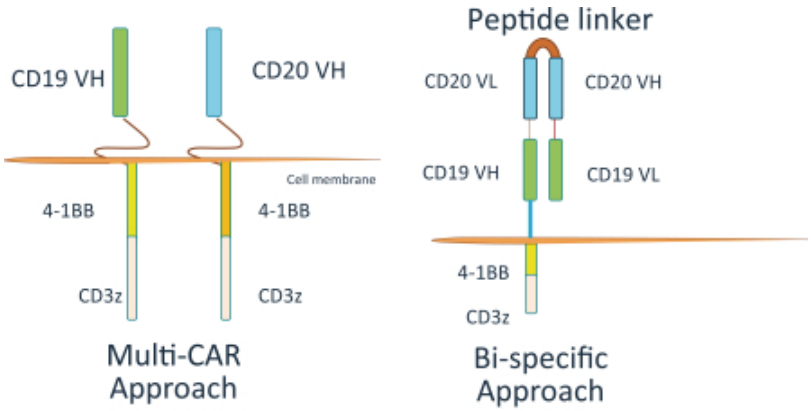
We also tested an autologous MUC1C CAR-T in a preclinical xenograft model of ovarian cancer in which immunocompromised (NSG) mice were implanted intraperitoneally with 5 x 10E6 human OVCAR3 ovarian cancer cells 14 days before CAR-T cell injection. In this model, intraperitoneally administered MUC1C CAR-T at both a near standard dose (8 x 10E6) and a low stress dose (4 x 10E6) eliminated tumor cells to levels below the limit of detection, as shown in the figure below:



We anticipate an IND filing and initiation of a Phase 1 clinical trial for an allogeneic version of a MUC1C CAR, which we refer to as P-MUC1C-ALLO1, in 2021. P-MUC1C-ALLO1 was designed to leverage the learnings of our P-BCMA-ALLO1 program.

Dual CAR-T Allogeneic Program Candidates

The very large cargo capacity of piggyBac allows for the inclusion of much larger therapeutic transgenes compared to viral-based technologies. We believe that our ability to include two or more fully functional CAR and/or TCR molecules into a T cell could be a significant competitive advantage. Unlike some competitors that have tried to use a bi-specific binder to approach this problem, we believe that including two, or more, full CAR or TCR molecules has the potential to be more effective approach.



Multi-CAR Approach Enabled by piggyBac

Dual CAR CD19/CD20. Dual CAR CD19/CD20 is an allogeneic, off-the-shelf CAR-T product candidate in preclinical development for B cell leukemia and lymphoma indications and some autoimmune diseases. Dual CAR CD19/CD20 contains two fully functional CAR molecules to target cells that express either CD19 or CD20. We believe that by targeting both CD19 and CD20, we have the potential to overcome some of the issues of earlier generation CD19 CAR-T products where antigen escape has been observed. We intend to develop this product candidate to be fully allogeneic by applying our learnings from the P-BCMA-ALLO1 program. We anticipate an IND filing and initiation of a Phase 1 clinical trial in late 2021.

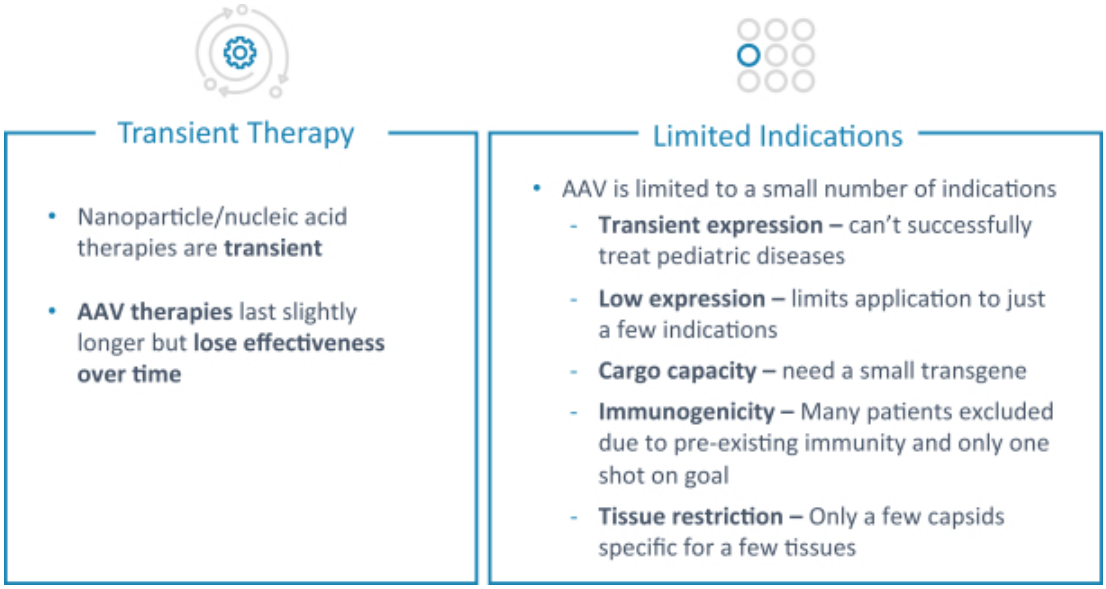
Dual CAR BCMA/CD19. Dual CAR BCMA/CD19 is an allogeneic, off-the-shelf CAR-T product candidate in preclinical development for multiple myeloma. Dual CAR BCMA/CD19 contains two fully functional CAR molecules to target cells that express either BCMA or CD19. Based on published studies of CD19 therapeutic candidates in multiple myeloma patients, we believe that targeting both BCMA and CD19 may be more effective than targeting BCMA alone in some patients because it has been hypothesized that there could be myeloma stem cells that express CD19 but do not express BCMA. In addition, including CD19 may prevent anti-drug antibody responses that could shorten the effectiveness of a BCMA-only therapy in some patients. We intend to develop this product candidate to be fully allogeneic by applying our learnings from the P-BCMA-ALLO1 program. We anticipate an IND filing and initiation of a Phase 1 clinical trial in late 2021.

Dual CAR (undisclosed). Dual CAR (undisclosed) is an allogeneic, off-the-shelf CAR-T product candidate in preclinical development for solid tumors. Dual CAR (undisclosed) contains two fully functional CAR molecules to target cells that express either of two targets that are currently undisclosed. We intend to develop this product candidate to be fully allogeneic by applying our learnings from the P-BCMA-ALLO1 program. We anticipate an IND filing and initiation of a Phase 1 clinical trial in 2022.

Liver Directed Gene Therapy

The concept of *in vivo* gene therapy arose during the early 1970's, with initial human testing beginning in 1980. However, early clinical failures held back the development of the field and associated funding and progress was slow until the last decade. Within the last decade, gene therapy has expanded and gained more acceptance. Due to some clinical successes and associated funding and merger and acquisition activity, the field is now emerging as a major focus of new therapeutic development. Despite this re-emergence of interest and development, much of the *in vivo* gene therapy work faces significant challenges.

Among the primary limitations of most current gene therapies are the fact that these therapies are generally transient in nature and, therefore, limited to a narrow range of indications. These limitations are driven by a number of factors associated with using AAV as the standard method of delivering the therapeutic transgene. First, specific AAV capsids can be used to effectively infect a number of cell types *in vivo*, but AAV does not generally integrate into the genome without the virus' rep gene, which is removed in gene therapy applications to accommodate the therapeutic transgene. The lack of integration results in low expression levels of the therapeutic transgene that generally decrease over time. As cells divide, expression is eventually lost, thus making it difficult or impossible to use AAV-mediated gene therapies in rapidly dividing tissues, such as the pediatric liver. Unfortunately, the pediatric liver is the tissue that needs to be targeted in order to treat many monogenetic inborn errors of metabolism, particularly in the majority of patients that are more severely affected. Second, AAV has a relatively small cargo capacity, which can limit its ability to treat indications where a larger therapeutic transgene is needed to correct the underlying disease. The relatively small cargo capacity also limits the inclusion of additional features, such as larger tissue-specific promoters, insulators or safety switches. Third, AAV itself can be immunogenic with pre-existing antibodies in some patients. Furthermore, AAV-based therapies often elicit antibody-based immune reactions, making repeat dosing very challenging. Finally, earlier-generation AAV therapies require relatively high doses of virus to deliver enough of the gene to have a clinical effect, which creates safety issues associated with the AAV itself.

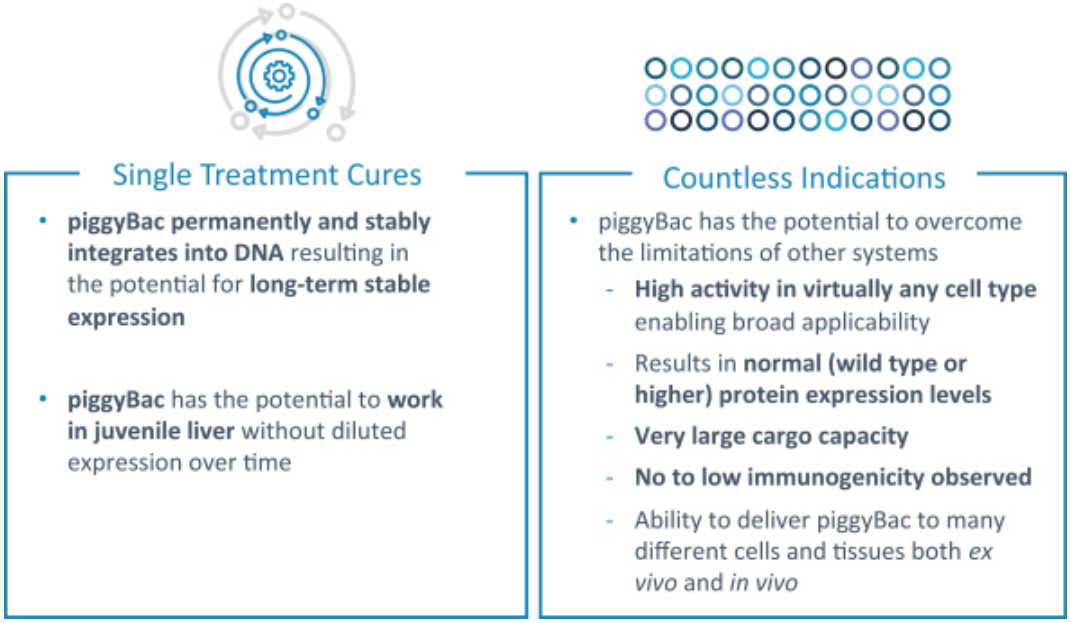


Our technology is designed to address the shortcomings of other AAV approaches in several important ways. First, by combining our piggyBac technology with AAV, we believe we can create a therapeutic that integrates the therapeutic transgene into the DNA and becomes a stable part of the patient's DNA, even in rapidly dividing cells. This results in the potential for single-treatment cures, even when treating indications that manifest predominantly in the pediatric liver. Second, piggyBac is highly efficient at integrating into DNA,

resulting in stable and high expression levels of therapeutic transgenes even at relatively low doses, which we believe may allow potent activity in indications that are not currently treatable with AAV-only technologies. Furthermore, piggyBac in combination with AAV might be effective at much lower viral doses when compared with AAV-only technologies and would therefore mitigate some of the risk of toxicity due to AAV itself.

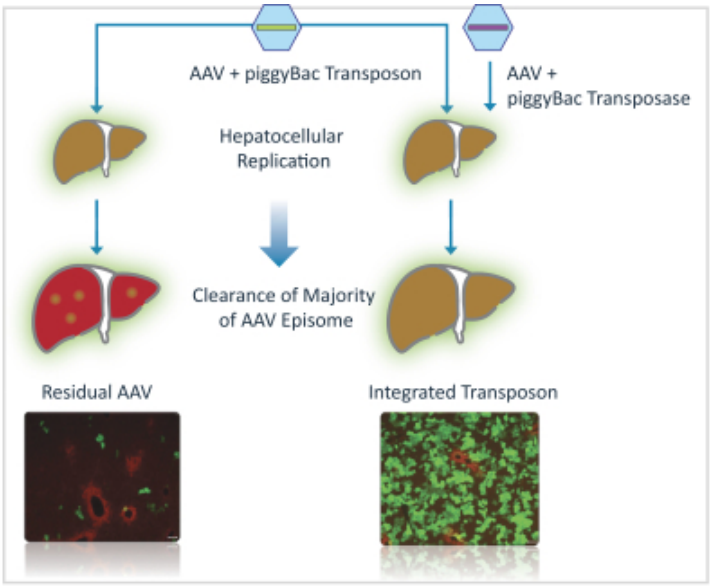
We are also combining our piggyBac technology with our nanoparticle technology to deliver therapeutic transgenes in an effort to eliminate the need for AAV altogether. This would completely avoid virus-related toxicity and also enable delivery of larger genes and repeat dosing, which would further expand the number of indications that could be treated.

While our technology platforms enable the development of *in vivo* gene therapies in a wide array of applications, we are focusing our initial efforts on liver-directed gene therapy, where we have promising preclinical data and believe we have a significant competitive advantage over early generation gene therapies. We believe that our technology has the potential to address indications and patient populations that AAV-only technologies will not be able to address. In some cases, we believe that by combining our piggyBac technology with AAV or nanoparticle delivery, we have the potential to transform those transient therapies into single-treatment, lifetime durable responses.

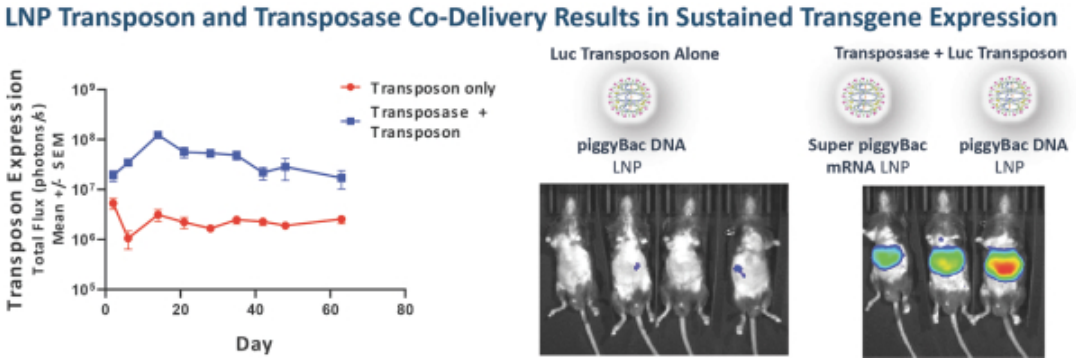


Any AAV-based system can be converted into a piggyBac-AAV vector by simply adding the piggyBac ITRs, which can be as small as 50 base pairs each, inside of the AAV ITRs (AAV + piggyBac transposon). We expect this vector will perform the same as a standard AAV vector in the absence of the piggyBac transposase, which can be delivered in a second AAV (AAV + piggyBac transposase). When using an enhanced green fluorescent protein (EGFP) reporter gene as a surrogate for a therapeutic transgene and injecting the AAV + piggyBac transposon (no transposase) into animals, we observed a low level of EGFP expression in the liver of the mouse (lower left panel). Similar to other standard AAV therapies, there was a low expression level due to episomal (non-integrated) AAV and as such, it diminished over time, especially as the cells divided. However, when the AAV + piggyBac transposon was co-injected with the AAV + transposase, we observed a high, stable level of expression in a majority of hepatocytes, as shown in the lower right panel. In this case, the piggyBac transposase pulled the transgene out of the transposon and stably integrated it into the genome. As the cells

divided, they replicated the integrated therapeutic transgene so all progeny cells permanently expressed it. This strategy has been used in three separate mouse models of various severe congenital liver genetic diseases: OTC deficiency, citrullinemia Type I and progressive familial intrahepatic cholestasis Type III, demonstrating the potential for single-treatment cures in each case.



One of the goals for our gene therapy programs is to be able to deliver our gene engineering technologies by nanoparticle to eliminate the need to use AAV due to its limitations. In preclinical work, we are seeing positive results in delivering piggyBac transposon (DNA) and piggyBac transposase (RNA) into animal models, resulting in significant integration and transgene expression in all zones of the liver. The following figure represents an experiment where we co-administered piggyBac transposon (DNA) and piggyBac transposase (RNA) formulated into separate nanoparticles to a juvenile mouse and measured levels of expression of a reporter gene in the liver out to 60 days. These data, while preliminary, potentially represent a significant step forward toward our goal of nanoparticle delivery of piggyBac, which we believe would represent a significant advance compared to traditional gene therapy.



Our Gene Therapy Programs

P-OTC-101

Overview

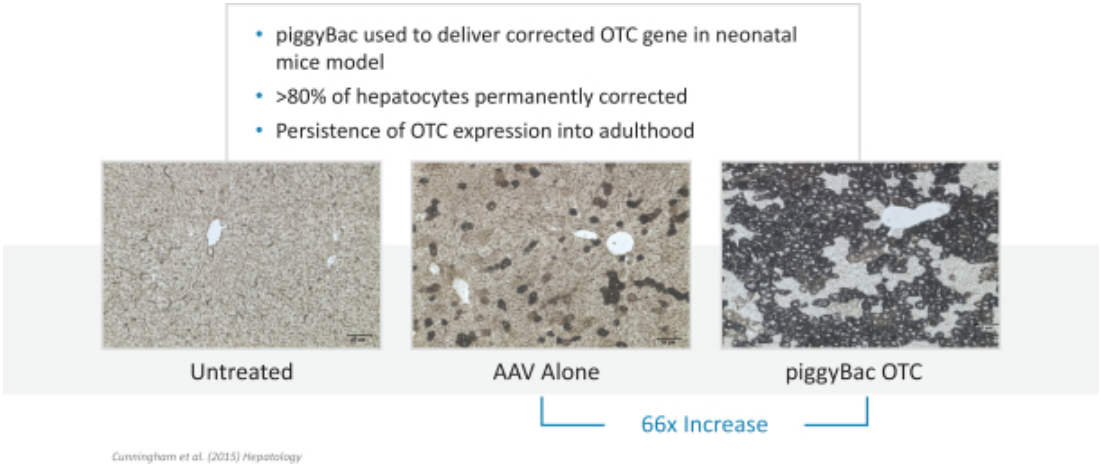
P-OTC-101 is an *in vivo* liver-directed gene therapy candidate for the treatment of OTC deficiency, which we believe has the potential to achieve single-treatment, lifetime durable responses. We are using our proprietary piggyBac DNA Modification System combined with a liver-directed AAV to deliver a replacement OTC gene to the liver. P-OTC-101 is undergoing preclinical development and we anticipate an IND filing and initiation of a Phase 1 clinical trial in late 2021 or 2022.

Target Indication

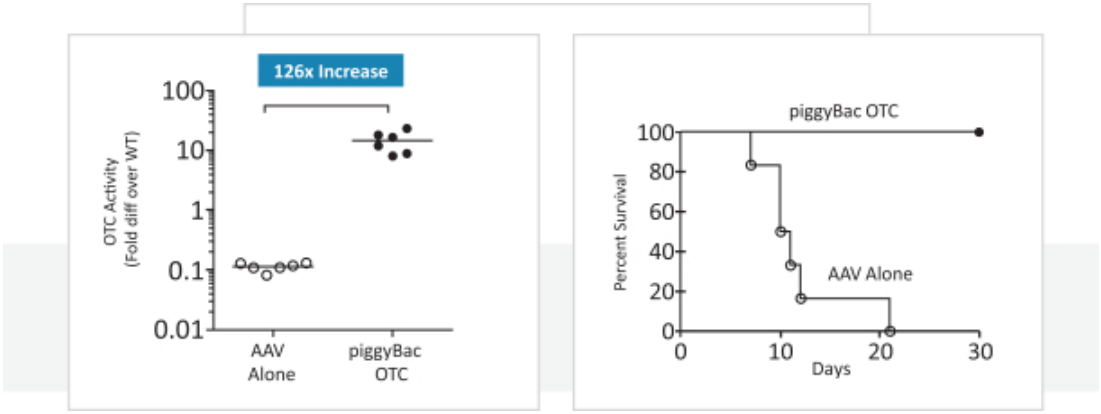
OTC is a rare genetic disorder characterized by complete or partial lack of the enzyme OTC. OTC is an enzyme that plays a role in the breakdown and removal of nitrogen from the body, a process known as the urea cycle. The lack of the OTC enzyme results in excessive accumulation of nitrogen in the form of ammonia (hyperammonemia) in the blood. Excess ammonia, which is a neurotoxin, travels to the central nervous system through the blood, resulting in symptoms of lethargy, vomiting, irritability and, in more severe cases, decreased muscle tone, seizures, enlarged liver, respiratory difficulties and death. A severe form of the disorder affects some infants, typically newly born males. A milder form of the disorder affects some children later in infancy. More severe forms of OTC comprise a high unmet medical need.

Preclinical Data

In preclinical studies conducted by our academic collaborators, the approach of combining piggyBac with AAV (piggyBac OTC) demonstrated stable and high level expression of a therapeutic transgene in the mouse liver compared to AAV-only technologies.



In the same study, treatment with piggyBac OTC resulted in a 126-fold increase in OTC levels compared with AAV alone and survival of all the animals in the treated group versus 0% survival in the AAV alone group. The expression of OTC at more than 10 times the normal (WT) levels also highlights the potential to lower the dose of piggyBac-OTC compared with standard AAV-alone therapies and the ability to still achieve single-treatment, durable responses, which would have additional cost and tolerability benefits compared to standard AAV therapies.



We are in the process of repeating these preclinical studies with several improved liver-specific AAV capsids before selecting a final P-OTC-101 clinical formulation and dosing strategy. We anticipate an IND filing and initiation of a Phase 1 clinical trial in late 2021 or 2022.

P-MMUT-101

Overview

P-MMUT-101 is an *in vivo* liver-directed gene therapy for the treatment of MMA due to a MMUT deficiency, or a defect in the MMUT gene, which we believe has the potential to achieve single-treatment, lifetime durable responses.

We are using our proprietary piggyBac DNA Modification System combined with a liver-directed AAV to deliver a replacement MMUT gene with a P-MMUT-101 therapeutic transgene. P-MMUT-101 is undergoing preclinical development and we anticipate an IND filing and initiation of a Phase 1 clinical trial in 2022.

Target Indication

MMA is an inherited inborn error of metabolism in which the body is unable to process certain proteins and fats properly. The effects of MMA, which usually appear in early infancy, vary from mild to life-threatening. Affected infants can experience vomiting, dehydration, weak muscle tone, developmental delay, excessive tiredness, an enlarged liver, and failure to gain weight and grow at the expected rate. Long-term complications can include feeding problems, intellectual disability, chronic kidney disease, and inflammation of the pancreas. Without treatment, this disorder can lead to coma and death in some cases.

Preclinical Data

P-MMUT-101 is undergoing preclinical development and we anticipate an IND filing and initiation of a Phase 1 clinical trial for P-MMUT-101 in 2022.

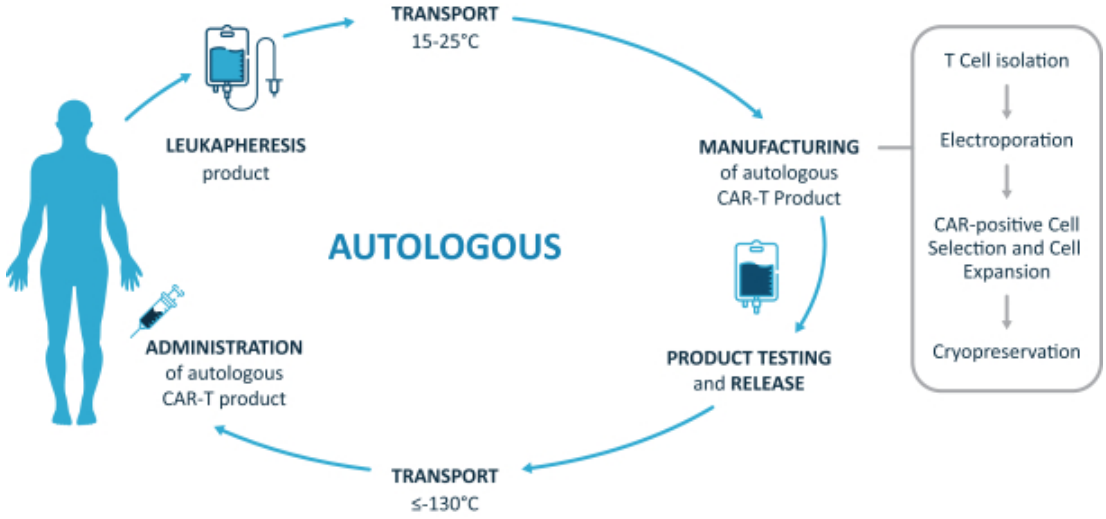
Potential Additional Programs and Partnership Opportunities

While we have leveraged our platform technologies to currently pursue the development of CAR-T and liver-directed gene therapy product candidates, our technologies have broad applicability across a wide array of cell and gene therapeutic modalities and diseases. Beyond the current pipeline, we and our collaborators have preclinical data that illustrate future potential applications of the technology platforms when combined in various ways. We may in the future use these tools to create T cell-based products to address indications beyond oncology, such as autoimmune diseases, infectious diseases, allergy-related diseases or even neurodegenerative diseases. CAR-T may also be used as an alternative and non-myeloablative preconditioning regimen for stem cell transplants. Our technologies also work well in other cells types and tissues including induced pluripotent stem cells, natural killer cells, HSCs, B cells, hepatocytes, muscles and many others, which could enable additional approaches for future therapeutics in a variety of indications. Lastly, we could use our Cas-CLOVER technology directly *in vivo*, similar to the approaches taken by other gene editing companies.

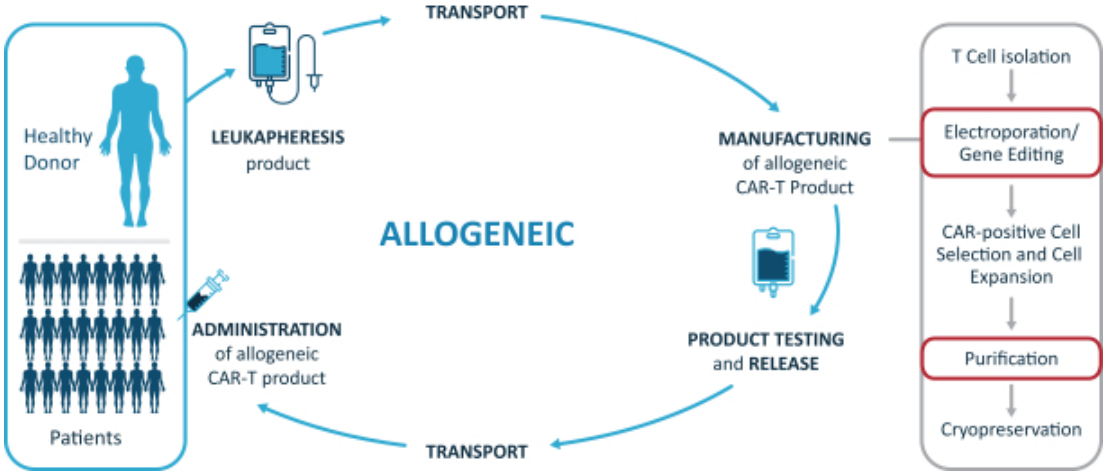
Our CAR-T Manufacturing Processes

Our autologous CAR-T product candidates consist of patient T cells that have been genetically engineered to express a CAR molecule and other genes. PBMCs are harvested by a standard leukapheresis procedure at the enrolling hospital, with the leukapheresis cells transported to the manufacturing site immediately subsequent to the procedure.

Manufacturing of autologous CAR-T product candidates includes CD4-postive and CD8-positive T cell isolation via positive selection, electroporation of the piggyBac DNA transposon transgene (encoding the CAR molecule gene, the DHFR positive selection gene and the safety switch gene) and Super piggyBac transposase RNA (the enzyme that mobilizes the piggyBac transposon transgene), CAR-positive T cell selection via methotrexate, and cell expansion. The final product is then bagged and cryopreserved. Following product release for administration, cryopreserved product candidates are shipped by courier to the pharmacy or applicable cell therapy facility of the enrolling study center where they are stored until the time of administration.



The manufacturing process for our allogeneic product candidates is nearly identical to the process for our autologous product candidates, except for the gene editing, a related additional purification step and the addition of booster molecules:



CAR-T Contract Manufacturing

We work with a number of third-party contract manufacturers for production of our product candidates. For the manufacturing of P-BCMA-101 we currently have relationships with two global contract manufacturing companies, Lonza Group and WuXi AppTec, Inc., from which we receive clinical supplies and on which we may rely on for commercial manufacturing. For the P-PSMA-101 Phase 1 clinical trial, we are utilizing C3i, a contract manufacturer in Montreal, Quebec affiliated with the University of Montreal Hospital. For our other product candidates, we are evaluating various third-party manufacturers for clinical supply. We also work with a variety of suppliers to provide our manufacturing raw materials including media, DNA and RNA components. We believe that our relationships with our contract manufacturers and suppliers are good.

We have initiated construction of an internal pilot GMP manufacturing facility in San Diego adjacent to our headquarters to develop and manufacture preclinical materials and clinical supplies for Phase 1 and Phase 2 clinical trials in the future. We expect to commence operations in this facility in the second half of 2020. In the future, we may also build one or more commercial manufacturing facilities for any approved product candidates.

Commercialization Plans

We possess global rights to our product candidates and discovery programs. We intend to retain significant development and commercialization rights to our product candidates and, if marketing approval is obtained, to commercialize our product candidates on our own, or potentially with a partner, in the United States and other regions. We currently have no sales, marketing, or commercial product distribution capabilities and have no experience as a company in marketing products. We plan to build the necessary infrastructure and capabilities over time in the United States, and potentially other regions, following further advancement of our product candidates. Clinical data, the size of the addressable patient population, the size of the commercial infrastructure and manufacturing needs may all influence or alter our commercialization plans.

Competition

The biotechnology industry, and specifically the CAR-T and gene therapy sciences, are characterized by intense and rapidly changing competition to develop new technologies and proprietary products. While we

believe that our proprietary approach and scientific expertise in CAR-T and gene therapies provide us with competitive advantages, we face potential competition from many different sources, including larger and better-funded pharmaceutical companies, as well as academic and research institutions. Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are more effective, safer, have fewer or less severe side effects, are more convenient, or cost less than any products that we may develop. The key competitive factors affecting the success of our programs are likely to be their efficacy, safety, convenience and cost.

There are other organizations currently working toward commercializing existing therapies and/or new therapies for our initially selected indications. If these efforts are successful and their product candidates are approved or marketed prior to ours, it is possible they may increase the barriers to adoption of our product candidates.

Due to the promising clinical therapeutic effect of CAR-T product candidates in clinical trials, we anticipate direct competition from other organizations developing advanced T cell therapies and other types of oncology therapies. This would include companies in the CAR-T space including: Adaptimmune Therapeutics plc, Allogene, Inc., Astellas Pharma, Inc., Autolus Ltd., Bellicum Pharmaceuticals Inc., Bluebird Bio, Inc., Cellectis S.A., Janssen Pharmaceuticals Inc., Juno Therapeutics, Inc. (acquired by Celgene Corporation), Kite Pharma, Inc. (a Gilead Sciences, Inc. company), Nanjing Legend Biotech, Novartis AG and Takeda Inc.

Immunotherapy and gene therapy approaches are further being pursued by several smaller biotechnology companies as well as larger pharmaceutical companies. We also face competition from non-cell-based treatments offered by companies such as Amgen Inc., AstraZeneca plc, Bristol-Myers Squibb Company, F. Hoffman-La Roche AG, GlaxoSmithKline plc, Merck & Co., Inc. and Pfizer Inc. Many of our competitors, either alone or with their collaboration partners, have substantially greater financial, technical and other resources, such as larger research and development staff and/or greater expertise in research and development, manufacturing, preclinical testing and conducting clinical trials.

Recent approvals and M&A activity have also spurred the creation of many companies now pursuing gene therapy technologies and indications. The landscape is evolving rapidly and these companies are too numerous to list, but would include companies such as Alnylam Pharmaceuticals, Inc., Astellas, Beam Therapeutics, Inc., BioMarin Pharmaceuticals, Inc., Bluebird Bio, Cellectis, CRISPR Therapeutics, AG, Editas Medicines, Inc., F. Hoffman-La Roche AG (acquired Spark Therapeutics, Inc.), Intellia Therapeutics, Inc., LogicBio Therapeutics, Inc, Moderna, Inc., Novartis AG (acquired AveXis, Inc.), Passage Bio, Inc., Sangamo Therapeutics, Inc., Sarepta Therapeutics, Inc. and Ultragenyx, Inc.

In addition, smaller or early-stage companies may compete with us through collaborative arrangements with more established companies. Competition may increase further as a result of advances in the commercial applicability of technologies and greater availability of capital for investment in these enterprises. Mergers and acquisitions in the pharmaceutical, biotechnology and gene therapy industries are prevalent and may result in even more resources being concentrated among a smaller number of our competitors. Our competitors also compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and patient registration for clinical trials.

Intellectual Property

Intellectual property is of vital importance in our field and in biotechnology generally. We seek to protect and enhance proprietary technology, inventions, and improvements that are commercially important to the development of our business by seeking, maintaining, and defending patent rights, whether developed internally, acquired or licensed from third parties. We will also seek to rely on regulatory protection afforded through orphan drug designations, inclusion in expedited development and review, data exclusivity, market exclusivity and patent term extensions where available.

Our intellectual property estate is designed to provide multiple layers of protection, including: (1) patent rights with claims directed to platform technologies; (2) patent rights with claims directed to core components used in our products; (3) patent rights covering specific products; (4) patent rights covering methods of treatment for therapeutic indications; (5) patent rights covering methods of use for core components and platform technologies; and (6) patent rights covering innovative manufacturing processes. We also rely on trade secrets that may be important to the development of our business.

We believe our current layered patent estate, together with our efforts to develop and patent next generation technologies, provides us with substantial intellectual property protection.

We have filed or will file for patent protection in the United States and internationally for P-BCMA-101, P-PSMA-101, P-BCMA-ALLO1, P-PSMA-ALLO1, P-MUC1C-ALLO1, our Dual CAR product candidates, and P-OTC-101 and P-MMUT-101, our gene therapy product candidates. However, the area of patent and other intellectual property rights in biotechnology is an evolving one with many risks and uncertainties.

With respect to the platform technologies and core components described above (e.g., T_{SCM} compositions and manufacturing method, genetically-modified HSC manufacturing method, inducible safety switch, piggyBac DNA Modification System, Cas-CLOVER gene editing technology, booster molecules for enhanced immune cell expansion, armoring strategies, and nanoparticle delivery methods) the intellectual property estate is comprised predominantly of company-owned or company-acquired intellectual property. We expect to file additional patent applications in support of current and new product candidates as well as new platform and core technologies. Our commercial success will depend in part on obtaining and maintaining patent protection and trade secret protection of our current and future product candidates and the methods used to develop and manufacture them, as well as successfully defending these patents against third-party challenges and operating without infringing on the proprietary rights of others. Our ability to stop third parties from making, using, selling, offering to sell or importing our products depends on the extent to which we have rights under valid and enforceable patents or trade secrets that cover these activities. We cannot be sure that patents will be granted with respect to any of our pending patent applications or with respect to any patent applications filed by us in the future, nor can we be sure that any of our existing patents or any patents that may be granted to us in the future will be commercially useful in protecting our product candidates, discovery programs and processes. For this and more comprehensive risks related to our intellectual property, please see the section titled “Risk Factors—Risks Related to Our Intellectual Property.”

The term of individual patents depends upon the legal term of the patents in the countries in which they are obtained. In most countries in which we file, including the United States, the patent term is 20 years from the earliest date of filing a non-provisional patent application. In the United States, a patent’s term may be lengthened by patent term adjustment, which compensates a patentee for administrative delays by the USPTO in examining and granting a patent, or may be shortened if a patent is terminally disclaimed over an earlier filed patent or delays on the part of a patentee. In the United States, the patent term of a patent that covers an FDA-approved drug may also be eligible for patent term extension, which permits patent term restoration as compensation for the patent term lost during the FDA regulatory review process. The Hatch-Waxman Act permits a patent term extension of up to five years beyond the expiration of the patent. The length of the patent term extension is related to the length of time the drug is under regulatory review. Patent term extension cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval, only one patent applicable to an approved drug may be extended and only those claims covering the approved drug, a method for using it, or a method for manufacturing it may be extended. Similar provisions are available in Europe and other foreign jurisdictions to extend the term of a patent that covers an approved drug. In the future, if and when our products receive FDA approval, we expect to apply for patent term extensions on patents covering those products. We plan to seek patent term extensions to any of our issued patents in any jurisdiction where these are available, however there is no guarantee that the applicable authorities, including the FDA in the United States, will agree with our assessment of whether such extensions should be granted, and if granted, the length of such extensions. For more information regarding the risks related to our intellectual property, see the section titled “Risk Factors—Risks Related to Our Intellectual Property.”

In some instances, we submit patent applications directly with the USPTO as provisional patent applications. Provisional applications for patents were designed to provide a lower-cost first patent filing in the United States. Corresponding non-provisional patent applications must be filed not later than 12 months after the provisional application filing date. The corresponding non-provisional application benefits in that the priority date(s) of the patent application is/are the earlier provisional application filing date(s), and the patent term of the finally issued patent is calculated from the later non-provisional application filing date. This system allows us to obtain an early priority date, add material to the patent application(s) during the priority year, obtain a later start to the patent term and to delay prosecution costs, which may be useful in the event that we decide not to pursue examination in an application. While we intend to timely file non-provisional patent applications relating to our provisional patent applications, we cannot predict whether any such patent applications will result in the issuance of patents that provide us with any competitive advantage.

We file U.S. non-provisional applications and Patent Cooperation Treaty, or PCT, applications that claim the benefit of the priority date of earlier filed provisional applications, when applicable. The PCT system allows a single application to be filed within 12 months of the original priority date of the patent application, and to designate all of the 152 PCT member states in which national patent applications can later be pursued based on the international patent application filed under the PCT. The PCT searching authority performs a patentability search and issues a non-binding patentability opinion which can be used to evaluate the chances of success for the national applications in foreign countries prior to having to incur the filing fees. Although a PCT application does not issue as a patent, it allows the applicant to seek protection in any of the member states through national-phase applications. At the end of the period of two and a half years from the first priority date of the patent application, separate patent applications can be pursued in any of the PCT member states either by direct national filing or, in some cases by filing through a regional patent organization, such as the European Patent Organization. The PCT system delays expenses, allows a limited evaluation of the chances of success for national/regional patent applications and enables substantial savings where applications are abandoned within the first two and a half years of filing.

For all patent applications, we determine claiming strategy on a case-by-case basis. Advice of counsel and our business model and needs are always considered. We file patents containing claims for protection of all useful applications of our proprietary technologies and any products, as well as all new applications and/or uses we discover for existing technologies and products, assuming these are strategically valuable. We continuously reassess the number and type of patent applications, as well as the pending and issued patent claims to ensure that maximum coverage and value are obtained for our processes, and compositions, given existing patent office rules and regulations. Further, claims may be modified during patent prosecution to meet our intellectual property and business needs.

We recognize that the ability to obtain patent protection and the degree of such protection depends on a number of factors, including the extent of the prior art, the novelty and non-obviousness of the invention, and the ability to satisfy the enablement requirement of the patent laws. In addition, the coverage claimed in a patent application can be significantly reduced before the patent is issued, and its scope can be reinterpreted or further altered even after patent issuance. Consequently, we may not obtain or maintain adequate patent protection for any of our future product candidates or for our technology platform. We cannot predict whether the patent applications we are currently pursuing will issue as patents in any particular jurisdiction or whether the claims of any issued patents will provide sufficient proprietary protection from competitors. Any patents that we hold may be challenged, circumvented or invalidated by third parties.

In addition to patent protection, we also rely on trademark registration, trade secrets, know how, other proprietary information and continuing technological innovation to develop and maintain our competitive position. We seek to protect and maintain the confidentiality of proprietary information to protect aspects of our business that are not amenable to, or that we do not consider appropriate for, patent protection. Although we take steps to protect our proprietary information and trade secrets, including through contractual means with our employees and consultants, third parties may independently develop substantially equivalent proprietary

information and techniques or otherwise gain access to our trade secrets or disclose our technology. Thus, we may not be able to meaningfully protect our trade secrets. It is our policy to require our employees, consultants, outside scientific collaborators, sponsored researchers and other advisors to execute confidentiality agreements upon the commencement of employment or consulting relationships with us. These agreements provide that all confidential information concerning our business or financial affairs developed or made known to the individual during the course of the individual's relationship with us is to be kept confidential and not disclosed to third parties except in specific circumstances. Our agreements with employees also provide that all inventions conceived by the employee in the course of employment with us or from the employee's use of our confidential information are our exclusive property. However, such confidentiality agreements and invention assignment agreements can be breached and we may not have adequate remedies for any such breach. In addition, our trade secrets may otherwise become known or be independently discovered by competitors. To the extent that our consultants, contractors or collaborators use intellectual property owned by others in their work for us, disputes may arise as to the rights in related or resulting trade secrets, know-how and inventions. For more information regarding the risks related to our intellectual property, see the section titled "Risk Factors—Risks Related to Our Intellectual Property."

The patent positions of biotechnology companies like ours are generally uncertain and involve complex legal, scientific and factual questions. Our commercial success will also depend in part on not infringing upon the proprietary rights of third parties. It is uncertain whether the issuance of any third-party patent would require us to alter our development or commercial strategies, or our products or processes, obtain licenses or cease certain activities. Our breach of any license agreements or our failure to obtain a license to proprietary rights required to develop or commercialize our future products may have a material adverse impact on us. If third parties prepare and file patent applications in the United States that also claim technology to which we have rights, we may have to participate in interference or derivation proceedings in the USPTO to determine priority of invention. For more information, see the section titled "Risk Factors—Risks Related to Our Intellectual Property."

When available to expand market exclusivity, our strategy is to obtain, or license additional intellectual property related to current or contemplated development platforms, core elements of technology and/or product candidates.

Company-Owned Intellectual Property

P-BCMA-101 is covered by a number of filings, including a published PCT application filed in 2017 that entered the national phase in January of 2019. National phase applications are pending in several countries outside the United States, including most major market countries. Composition of matter claims issuing from this application would not expire before 2037.

P-PSMA-101 is covered by a number of filings, including, a published PCT application filed in March 2019 that is due to enter the national stage in September of 2020. Composition of matter claims issuing from this application would not expire before 2039.

P-BCMA-ALLO1 is covered by a number of filings, including, a published PCT application filed in December 2018 that is due to enter the national stage in June of 2020. Composition of matter claims issuing from this application would not expire before 2038.

P-MUC1C-ALLO1 is covered by a number of filings, including a published PCT application filed in 2017 that entered the national phase in January of 2019. National phase applications are pending in several countries outside the United States, including most major market countries. Composition of matter claims issuing from this application would not expire before 2037. In addition, two provisional applications were filed that are due for conversion to a non-provisional application in September of 2020. Composition of matter claims issuing from these applications would not expire before 2040.

Our Gene Therapy programs including P-OTC-101 and P-MMUT-101 are covered by a number of filings, including as of March 4, 2020, a pending provisional application that is due for conversion to a non-provisional application in March 2021. Composition of matter claims issuing from this application would not expire before 2041.

Our P-PSMA-ALLO1 and Dual CAR Programs, including Dual CAR CD19/CD20, Dual CAR BCMA/CD19 and Dual CAR (UD), are earlier in development and our intellectual property coverage is still being developed.

Core components of each of these product candidates are protected by company-owned platform applications directed to Centyrin binders (P-BCMA-101 and P-PSMA-101) or heavy-chain-only antibody fragment binders (P-BCMA-ALLO1), booster molecules for enhanced immune cell expansion (currently all allogeneic products), early memory T-cells (including T_{SCM}) and methods of producing same (P-BCMA-101, P-PSMA-101, P-BCMA-ALLO1 and P-MUC1C-ALLO1), piggyBac transposition systems (all products), inducible safety switches (all products), marker genes for facilitating simultaneous selection and expansion of modified cells for product manufacture, and self-cleaving peptides for trivalent transposon constructs (all products). Notably in December 2019, we were issued a U.S. patent that has claims that cover any modified T cell product that has 25% or more T_{SCM} cells and has a patent term expiring in 2037. We also have issued U.S. patents covering manufacturing methods and cell culture media used to produce these genetically modified T_{SCM} cells that have patent terms expiring in 2037. We also have an issued composition of matter patent in the U.S. protecting our Cas-CLOVER site-specific gene editing system that has a patent term expiring in 2032. We also have issued composition of matter patents in the U.S. protecting our piggyBac DNA Modification System that have patent terms expiring in 2030.

Acquired Intellectual Property

As a spin-out from Transposagen Biopharmaceuticals, Inc., or Transposagen, at inception, we acquired intellectual property related to piggyBac transposition systems and methods for use. This acquisition further comprised intellectual property related to next-generation gene editing systems and methods for use.

We acquired Vindico NanoBioTechnology, LLC (formerly known as Vindico NanoBioTechnology, Inc.) in October 2016. As part of this transaction, we acquired intellectual property related to polymer-based nanoparticle compositions and methods of use for delivery of, for example, gene therapy technologies.

License Agreements

License Agreement with Janssen Biotech

On August 3, 2015, we entered into a license agreement, or the Janssen Agreement, with Janssen Biotech Inc., or Janssen, pursuant to which we obtained an exclusive, sublicensable, worldwide license to research, develop, manufacture and commercialize pharmaceutical products comprising autologous CAR-modified T-cells or any CAR-modified natural killer or CAR-modified natural-killer-like cells expressing certain Centyrin molecules, for the treatment or prevention of any disease in humans. We are obligated to use commercially reasonable efforts to develop and commercialize at least one such licensed product. We utilize these license rights in our P-BCMA-101 and P-PSMA-101 product candidates. Under the Janssen Agreement, we also have the right to engage with authorized third parties to screen Janssen's Centyrin library for agents that bind or modify targets of interest for our internal research and development purposes for potential use in a licensed product.

Pursuant to the Janssen Agreement, we paid Janssen an upfront fee of $0.2 million. As of March 31, 2020, we have paid approximately $3.3 million in milestone development fees relating to P-BCMA-101 and approximately $0.7 million in milestone development fees relating to P-PSMA-101. We are required to pay Janssen up to an aggregate of $75.8 million upon the achievement of certain clinical, regulatory and sales milestones for the first licensed product and up to an aggregate of $46.8 million upon the achievement of certain

clinical, regulatory and sales milestones for each licensed product thereafter. We are also obligated to pay, on a product-by-product and country-by-country basis, tiered royalties in the low single-digit percentage range on annual net sales, with the royalty rates varying depending on if there is a valid claim present within the licensed patent rights covering the licensed product in the applicable country in which the net sales occur. The royalty rates are also subject to reduction upon certain other events.

The Janssen Agreement will terminate on the last to expire royalty term, which is determined on a licensed product-by-licensed product and country-by-country basis, and is the later of (1) 10 years from the first commercial sale of the licensed product in the country, (2) the last to expire valid claim within the licensed patent in the country or (3) expiry of regulatory exclusivity granted by the prevailing governmental authority for the licensed product in the country. We also have the right to terminate the Janssen Agreement in its entirety or on a licensed product-by-licensed product basis, for any reason upon 60 days prior written notice to Janssen. Either party may terminate the Janssen Agreement upon a material breach by the other party that is not cured within 60 days after receiving written notice, or upon giving written notice within 30 days of the other party's bankruptcy. If we terminate the Janssen Agreement for convenience or Janssen terminates the Janssen Agreement due to our breach of our diligence obligations thereunder, Janssen will have an option to negotiate a license from us to research, develop and commercialize the Centyrin CAR molecules and/or Centyrin therapeutic molecules. If Janssen exercised this option, Janssen would be obligated to pay us a fee in the low six figure dollar range.

April 2017 Commercial License Agreement with TeneoBio

On April 27, 2017, we entered into a commercial license agreement, or the 2017 TeneoBio Agreement, with TeneoBio, Inc., or TeneoBio, pursuant to which we obtained an exclusive, sublicenseable, worldwide license to use and develop pharmaceutical products comprising allogeneic T-cells expressing a CAR molecule containing certain heavy-chain-only sequences provided by TeneoBio (a CAR containing a non-naturally occurring heavy-chain-only antibody fragment) for the treatment of human disease. We utilize these license rights in our P-BCMA-ALLO1 product candidate.

Pursuant to the 2017 TeneoBio Agreement, we have paid TeneoBio $0.5 million through our selection of the antibodies licensed under the 2017 TeneoBio Agreement. We are required to pay TeneoBio up to an aggregate of $20.5 million upon the first achievement of certain clinical and regulatory milestones for any allogeneic product and up to an aggregate of $20.5 million upon the first achievement of certain clinical and regulatory milestones for any autologous product. We are also obligated to pay, on a product-by-product and country-by-country basis, a royalty in the low single-digit percentage on net sales of all licensed products.

The 2017 TeneoBio Agreement will terminate on the last to expire valid claim of the licensed patents in all countries. We may also terminate the 2017 TeneoBio Agreement at any time upon 60 days prior written notice to TeneoBio. Either party may terminate the 2017 TeneoBio Agreement upon a material breach by the other party that is not cured within 90 days after receiving written notice of the breach, or upon a bankruptcy of the other party.

August 2018 Commercial License Agreement with TeneoBio

On August 3, 2018, we entered into a commercial license agreement, or the 2018 TeneoBio Agreement, with TeneoBio for the development and use of TeneoBio's human heavy-chain-only antibodies in CAR-T cell therapies. Under the terms of the 2018 TeneoBio Agreement, we have the option to obtain exclusive rights to research, develop and commercialize up to a certain number of targets from TeneoBio.

Pursuant to the 2018 TeneoBio Agreement, we paid TeneoBio an upfront fee of $4.0 million. We are required to pay additional fees in the low to mid six figure dollar range upon (1) selecting exclusivity for a particular target, which restricts TeneoBio from licensing that particular target to a third party for a period of time, (2) continuing exclusivity for any selected target on each anniversary thereafter and (3) exercising our

commercial option for each target. We are required to pay TeneoBio up to an aggregate of $31.0 million upon the first achievement of certain clinical and regulatory milestones for each product. We are also obligated to pay, on a product-by-product and country-by-country basis, a low single-digit percentage royalty on net sales of any licensed products. The royalty rate is subject to reduction upon certain events.

The 2018 TeneoBio Agreement will terminate on the last to expire valid claim of the licensed patents in all countries. We may also terminate the 2018 TeneoBio Agreement with respect to one or more targets at any time upon 60 days prior written notice. Either party may terminate the 2018 TeneoBio Agreement upon a material breach by the other party that is not cured within 90 days after receiving written notice of the breach, or upon a bankruptcy of the other party.

License Agreement with Genus Oncology

On October 24, 2019, we entered into a license agreement, or the Genus Agreement, with Genus Oncology, LLC, or Genus. Pursuant to the Genus Agreement, we paid Genus an upfront fee of $1.5 million and Genus granted us the option, which was exercised for an additional $1.5 million in April 2020, to obtain an exclusive, sublicenseable, worldwide license under certain patents and a non-exclusive, sublicenseable, worldwide license under certain know-how controlled by Genus to research, develop and commercialize pharmaceutical products incorporating CAR cells expressing antibodies and derivatives thereof targeting MUC1, or a Genus licensed product, and a non-exclusive, sublicenseable, worldwide license under certain patents and know-how controlled by Genus to research, develop and commercialize companion diagnostics for the treatment, prevention and palliation of human diseases and conditions. The licenses granted pursuant to the Genus Agreement are subject to certain rights retained by an upstream licensor and the rights of the U.S. government. The retained rights of the upstream licensor pertain only to the ability of the upstream licensor to conduct teaching, education and other non-commercial research activities in the licensed field and for other academic, governmental or not-for-profit organizations to conduct non-commercial research activities in the licensed field, and do not limit our ability to pursue our programs and product candidates. We may use a Genus antibody or derivative thereof targeting MUC1 as a binder in our P-MUC1C-ALLO1 product candidate. Multiple other aspects of our P-MUC1C-ALLO1 product candidate are covered by other patents and intellectual property that we own or license and are not subject to rights of the U.S. government.

Pursuant to the Genus Agreement, we are also required to pay Genus up to an aggregate of $71.0 million upon first achievement of certain clinical, regulatory and sales milestones for any Genus licensed product and companion diagnostics. We are also obligated to pay, on a product-by-product and country-by-country basis, tiered royalties in the low to mid-single-digit percentage on net sales of any Genus licensed products and related companion diagnostics, subject to certain customary reductions.

The Genus Agreement will expire on the last to expire royalty term, which is determined on a product-by-product and country-by-country basis, and is the later of (1) the last to expire valid claim within the licensed patents covering the Genus licensed product in the country, (2) expiration of regulatory exclusivity for the Genus licensed product in the country and (3) 10 years from the first commercial sale of the Genus licensed product in the country. We may also terminate the Genus Agreement at any time upon 30 days prior written notice to Genus. Either party may terminate the Genus license agreement upon a material breach by the other party that is not cured within 90 days after receiving written notice of the breach. Genus also has the right to terminate the Genus Agreement immediately upon our bankruptcy or if we fail to initiate a Phase 1 clinical trial for a Genus licensed product within 20 months after approval of an IND submitted for such Genus licensed product.

License Agreement with HMGU

On May 20, 2016, we entered into a patent license agreement, or the HMGU License Agreement, with Helmholtz-Zentrum München—Deutsches Forschungszentrum für Gesundheit und Umwelt GmbH, or HMGU, pursuant to which we obtained exclusive worldwide rights to research, develop, manufacture and commercialize

products and services claimed by certain patent applications and patents owned by HMGU covering the nuclease Clo051 in certain fields of use, including human pharmaceutical products. We utilize these license rights in our Cas-CLOVER gene editing technology including P-BCMA-ALLO1 and our other planned allogeneic programs.

Pursuant to the HMGU License Agreement, we paid HMGU an upfront fee of $11,506, equal to €10,000 on the date of payment. We are required to pay HMGU annual maintenance fees credited against royalties due for the same year. We are also required to pay HMGU up to an aggregate of €1.7 million upon the first achievement of certain clinical and regulatory milestones for the first licensed product where Clo051 is part of the therapeutic agent and up to an aggregate of €0.9 million upon the first of certain clinical and regulatory milestones for the first licensed product where Clo051 is not part of the therapeutic agent. We are obligated to pay, on a licensed product-by-licensed product or licensed service-by-licensed service and country-by-country basis, royalties in the low single-digit percentage range on annual net sales, with the royalty rates varying depending on whether the licensed products are therapeutics or the licensed services are for therapeutic use and whether Clo051 is part of the therapeutic agent or used to generate the therapeutic agent. We currently use Clo051 as part of our gene engineering technology to generate our product candidates.

The HMGU License Agreement will terminate on the last to expire royalty term, which is determined on a licensed product-by-licensed product and country-by-country basis. We also have the right to terminate the HMGU License Agreement upon giving written notice within 3 months prior to the end of a calendar year. Either party may terminate the HMGU License Agreement upon a material breach by the other party that is not cured within six weeks after receiving written notice of the breach. The HMGU License Agreement terminates automatically if we become bankrupt.

License Agreements with Transposagen and Hera

We have also entered into license agreements with Transposagen and Hera in connection with the spin-out of our company from Transposagen. See the section titled “Certain Relationships and Related Party Transactions.”

Government Regulation

The FDA and other regulatory authorities at federal, state, and local levels, as well as in foreign countries, extensively regulate, among other things, the research, development, testing, manufacture, quality control, import, export, safety, effectiveness, labeling, packaging, storage, distribution, record keeping, approval, advertising, promotion, marketing, post-approval monitoring, and post-approval reporting of biologics such as those we are developing. We, along with third-party contractors, will be required to navigate the various preclinical, clinical and commercial approval requirements of the governing regulatory agencies of the countries in which we wish to conduct studies or seek approval or licensure of our product candidates.

The process required by the FDA before biologic product candidates may be marketed in the United States generally involves the following:

- completion of preclinical laboratory tests and animal studies performed in accordance with the FDA’s current Good Laboratory Practices regulation;
- submission to the FDA of an IND, which must become effective before clinical trials may begin and must be updated annually or when significant changes are made;
- approval by an independent Institutional Review Board, or IRB, or ethics committee at each treatment site before the trial is commenced;
- performance of adequate and well-controlled human clinical trials to establish the safety, purity and potency of the proposed biologic product candidate for its intended purpose;
- preparation of and submission to the FDA of a BLA after completion of all pivotal clinical trials;
- satisfactory completion of an FDA Advisory Committee review, if applicable;
- a determination by the FDA within 60 days of its receipt of a BLA to file the application for review;

- satisfactory completion of an FDA pre-approval inspection of the manufacturing facility or facilities at which the proposed product is produced to assess compliance with cGMP and to assure that the facilities, methods and controls are adequate to preserve the biological product's continued safety, purity and potency, and of selected clinical investigation sites to assess compliance with Good Clinical Practices, or GCP; and

- FDA review and approval of the BLA to permit commercial marketing of the product for particular indications for use in the United States.

Preclinical and Clinical Development

Prior to beginning the first clinical trial with a product candidate, we must submit an IND to the FDA. An IND is a request for authorization from the FDA to administer an investigational new drug product to humans. The central focus of an IND submission is on the general investigational plan and the protocol(s) for clinical studies. The IND also includes results of animal and in vitro studies assessing the toxicology, pharmacokinetics, pharmacology, and pharmacodynamic characteristics of the product; chemistry, manufacturing, and controls information; and any available human data or literature to support the use of the investigational product. An IND must become effective before human clinical trials may begin. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA, within the 30-day time period, raises safety concerns or questions about the proposed clinical trial. In such a case, the IND may be placed on clinical hold and the IND sponsor and the FDA must resolve any outstanding concerns or questions before the clinical trial can begin. Submission of an IND therefore may or may not result in FDA authorization to begin a clinical trial. In addition to the submission of an IND to the FDA before initiation of a clinical trial in the United States, certain human clinical trials involving recombinant or synthetic nucleic acid molecules had historically been subject to review by the Recombinant DNA Advisory Committee, or RAC, of the NIH Office of Biotechnology Activities, or OBA, pursuant to the NIH Guidelines for Research Involving Recombinant DNA Molecules, or NIH Guidelines. On August 17, 2018, the NIH issued a notice in the Federal Register and issued a public statement proposing changes to the oversight framework for gene therapy trials, including changes to the applicable NIH Guidelines to modify the roles and responsibilities of the RAC with respect to human clinical trials of gene therapy products, and requesting public comment on its proposed modifications. During the public comment period, which closed October 16, 2018, the NIH announced that it would no longer accept new human gene transfer protocols for review as part of the protocol registration process or convene the RAC to review individual clinical protocols. These trials will remain subject to the FDA's oversight and other clinical trial regulations, and oversight at the local level will continue as set forth in the NIH Guidelines. Specifically, under the NIH Guidelines, supervision of human gene transfer trials includes evaluation and assessment by an IBC, a local institutional committee that reviews and oversees research utilizing recombinant or synthetic nucleic acid molecules at that institution. The IBC assesses the safety of the research and identifies any potential risk to public health or the environment, and such review may result in some delay before initiation of a clinical trial. While the NIH Guidelines are not mandatory unless the research in question is being conducted at or sponsored by institutions receiving NIH funding of recombinant or synthetic nucleic acid molecule research, many companies and other institutions not otherwise subject to the NIH Guidelines voluntarily follow them.

Clinical trials involve the administration of the investigational product to human subjects under the supervision of qualified investigators in accordance with GCPs, which include the requirement that all research subjects provide their informed consent for their participation in any clinical study. Clinical trials are conducted under protocols detailing, among other things, the objectives of the study, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated. A separate submission to the existing IND must be made for each successive clinical trial conducted during product development and for any subsequent protocol amendments. Furthermore, an independent IRB for each site proposing to conduct the clinical trial must review and approve the plan for any clinical trial and its informed consent form before the clinical trial begins at that site and must monitor the study until completed. Regulatory authorities, the IRB or the sponsor may suspend a clinical trial at any time on various grounds, including a finding that the subjects are being exposed to an

unacceptable health risk or that the trial is unlikely to meet its stated objectives. Some studies also include oversight by an independent group of qualified experts organized by the clinical study sponsor, known as a data safety monitoring board, which provides authorization for whether or not a study may move forward at designated check points based on access to certain data from the study and may halt the clinical trial if it determines that there is an unacceptable safety risk for subjects or other grounds, such as no demonstration of efficacy. There are also requirements governing the reporting of ongoing clinical studies and clinical study results to public registries.

For purposes of BLA approval, human clinical trials are typically conducted in three sequential phases that may overlap.

- Phase 1—The investigational product is initially introduced into healthy human subjects or patients with the target disease or condition. These studies are designed to test the safety, dosage tolerance, absorption, metabolism and distribution of the investigational product in humans, the side effects associated with increasing doses, and, if possible, to gain early evidence on effectiveness.

- Phase 2—The investigational product is administered to a limited patient population with a specified disease or condition to evaluate the preliminary efficacy, optimal dosages and dosing schedule and to identify possible adverse side effects and safety risks. Multiple Phase 2 clinical trials may be conducted to obtain information prior to beginning larger and more expensive Phase 3 clinical trials.

- Phase 3—The investigational product is administered to an expanded patient population to further evaluate dosage, to provide statistically significant evidence of clinical efficacy and to further test for safety, generally at multiple geographically dispersed clinical trial sites. These clinical trials are intended to establish the overall risk/benefit ratio of the investigational product and to provide an adequate basis for product approval.

In some cases, the FDA may require, or companies may voluntarily pursue, additional clinical trials after a product is approved to gain more information about the product. These so-called Phase 4 studies may be made a condition to approval of the BLA. Concurrent with clinical trials, companies may complete additional animal studies and develop additional information about the biological characteristics of the product candidate and must finalize a process for manufacturing the product in commercial quantities in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the product candidate and, among other things, must develop methods for testing the identity, strength, quality and purity of the final product, or for biologics, the safety, purity and potency. Additionally, appropriate packaging must be selected and tested, and stability studies must be conducted to demonstrate that the product candidate does not undergo unacceptable deterioration over its shelf life.

BLA Submission and Review

Assuming successful completion of all required testing in accordance with all applicable regulatory requirements, the results of product development, nonclinical studies and clinical trials are submitted to the FDA as part of a BLA requesting approval to market the product for one or more indications. The BLA must include all relevant data available from pertinent preclinical and clinical studies, including negative or ambiguous results as well as positive findings, together with detailed information relating to the product's chemistry, manufacturing, controls, and proposed labeling, among other things. The submission of a BLA requires payment of a substantial application user fee to FDA, unless a waiver or exemption applies, and the sponsor of an approved BLA is also subject to an annual program fee.

Once a BLA has been submitted, the FDA's goal is to review standard applications within ten months after it accepts the application for filing, or, if the application qualifies for priority review, six months after the

FDA accepts the application for filing. In both standard and priority reviews, the review process is often significantly extended by FDA requests for additional information or clarification. The FDA reviews a BLA to determine, among other things, whether a product is safe, pure and potent and the facility in which it is manufactured, processed, packed, or held meets standards designed to assure the product's continued safety, purity and potency. The FDA may convene an advisory committee to provide clinical insight on application review questions. Before approving a BLA, the FDA will typically inspect the facility or facilities where the product is manufactured. The FDA will not approve an application unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. Additionally, before approving a BLA, the FDA will typically inspect one or more treatment sites to assure compliance with GCP. If the FDA determines that the application, manufacturing process or manufacturing facilities are not acceptable, it will outline the deficiencies in the submission and often will request additional testing or information. Notwithstanding the submission of any requested additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval.

After the FDA evaluates a BLA and conducts inspections of manufacturing facilities where the investigational product and/or its drug substance will be produced, the FDA may issue an approval letter or a Complete Response letter. An approval letter authorizes commercial marketing of the product with specific prescribing information for specific indications. A Complete Response letter will describe all of the deficiencies that the FDA has identified in the BLA, except that where the FDA determines that the data supporting the application are inadequate to support approval, the FDA may issue the Complete Response letter without first conducting required inspections, testing submitted product lots, and/or reviewing proposed labeling. In issuing the Complete Response letter, the FDA may recommend actions that the applicant might take to place the BLA in condition for approval, including requests for additional information or clarification. The FDA may delay or refuse approval of a BLA if applicable regulatory criteria are not satisfied, require additional testing or information and/or require post-marketing testing and surveillance to monitor safety or efficacy of a product.

If regulatory approval of a product is granted, such approval will be granted for particular indications and may entail limitations on the indicated uses for which such product may be marketed. For example, the FDA may approve the BLA with a Risk Evaluation and Mitigation Strategy, or REMS, to ensure the benefits of the product outweigh its risks. A REMS is a safety strategy to manage a known or potential serious risk associated with a product and to enable patients to have continued access to such medicines by managing their safe use, and could include medication guides, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. The FDA also may condition approval on, among other things, changes to proposed labeling or the development of adequate controls and specifications. Once approved, the FDA may withdraw the product approval if compliance with pre- and post-marketing requirements is not maintained or if problems occur after the product reaches the marketplace. The FDA may require one or more Phase 4 post market studies and surveillance to further assess and monitor the product's safety and effectiveness after commercialization and may limit further marketing of the product based on the results of these post-marketing studies.

Expedited Development and Review Programs

The FDA offers a number of expedited development and review programs for qualifying product candidates. The fast track program is intended to expedite or facilitate the process for reviewing new products that meet certain criteria. Specifically, new products are eligible for fast track designation if they are intended to treat a serious or life-threatening disease or condition and demonstrate the potential to address unmet medical needs for the disease or condition. Fast track designation applies to the combination of the product and the specific indication for which it is being studied. The sponsor of a fast track product has opportunities for frequent interactions with the review team during product development and, once a BLA is submitted, the product may be eligible for priority review. A fast track product may also be eligible for rolling review, where the FDA may consider for review sections of the BLA on a rolling basis before the complete application is submitted, if the

sponsor provides a schedule for the submission of the sections of the BLA, the FDA agrees to accept sections of the BLA and determines that the schedule is acceptable, and the sponsor pays any required user fees upon submission of the first section of the BLA.

A product intended to treat a serious or life-threatening disease or condition may also be eligible for breakthrough therapy designation to expedite its development and review. A product can receive breakthrough therapy designation if preliminary clinical evidence indicates that the product may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. The designation includes all of the fast track program features, as well as more intensive FDA interaction and guidance beginning as early as Phase 1 and an organizational commitment to expedite the development and review of the product, including involvement of senior managers.

Any marketing application for a biologic submitted to the FDA for approval, including a product with a fast track designation and/or breakthrough therapy designation, may be eligible for other types of FDA programs intended to expedite the FDA review and approval process, such as priority review and accelerated approval. A product is eligible for priority review if it has the potential to provide a significant improvement in the treatment, diagnosis or prevention of a serious disease or condition compared to marketed products. For products containing new molecular entities, priority review designation means the FDA's goal is to take action on the marketing application within six months of the 60-day filing date (compared with ten months under standard review).

Additionally, products studied for their safety and effectiveness in treating serious or life-threatening diseases or conditions may receive accelerated approval upon a determination that the product has an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments. As a condition of accelerated approval, the FDA will generally require the sponsor to perform adequate and well-controlled post-marketing clinical studies to verify and describe the anticipated effect on irreversible morbidity or mortality or other clinical benefit. In addition, the FDA currently requires as a condition for accelerated approval pre-approval of promotional materials, which could adversely impact the timing of the commercial launch of the product. While we currently intend to seek accelerated approval of P-BCMA-101 following the completion of our planned Phase 2 clinical trial, it is possible that at the time of a BLA submission, P-BCMA-101 would not be eligible for accelerated approval or the FDA could determine that accelerated approval is not warranted. In particular, because the FDA has already approved therapies for multiple myeloma, and because additional drugs may be approved for multiple myeloma while we are developing P-BCMA-101, it is difficult to predict whether accelerated approval will be possible for P-BCMA-101 at the time we expect to submit a BLA. The FDA has indicated that if data from our planned Phase 2 clinical trial do not provide evidence sufficient for accelerated approval, that additional clinical testing would be required to support approval, with a preference for us to conduct a randomized controlled trial or trials.

In 2017, FDA established a new regenerative medicine advanced therapy, or RMAT, designation as part of its implementation of the 21st Century Cures Act. The RMAT designation is intended to fulfill the 21st Century Cures Act requirement that FDA facilitate an efficient development program for, and expedite review of, any drug that meets the following criteria: (1) it qualifies as a RMAT, which is defined as a cell therapy, therapeutic tissue engineering product, human cell and tissue product, or any combination product using such therapies or products, with limited exceptions; (2) it is intended to treat, modify, reverse, or cure a serious or life-threatening disease or condition; and (3) preliminary clinical evidence indicates that the drug has the potential to address unmet medical needs for such a disease or condition. Like breakthrough therapy designation, RMAT designation provides potential benefits that include more frequent meetings with FDA to discuss the development plan for the product candidate and eligibility for rolling review and priority review. Products granted RMAT designation may also be eligible for accelerated approval on the basis of a surrogate or intermediate endpoint

reasonably likely to predict long-term clinical benefit, or reliance upon data obtained from a meaningful number of sites, including through expansion to additional sites. Once approved, when appropriate, the FDA can permit fulfillment of post-approval requirements under accelerated approval through the submission of clinical evidence, clinical studies, patient registries, or other sources of real world evidence such as electronic health records; through the collection of larger confirmatory datasets; or through post-approval monitoring of all patients treated with the therapy prior to approval.

Fast track designation, breakthrough therapy designation, priority review, accelerated approval, and RMAT designation do not change the standards for approval but may expedite the development or approval process.

Orphan Drug Designation

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug or biologic intended to treat a rare disease or condition, which is a disease or condition that affects fewer than 200,000 individuals in the United States, or more than 200,000 individuals in the United States for which there is no reasonable expectation that the cost of developing and making available in the United States a drug or biologic for this type of disease or condition will be recovered from sales in the United States for that drug or biologic. Orphan drug designation must be requested before submitting a BLA. After the FDA grants orphan drug designation, the generic identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. The orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review or approval process.

If a product that has orphan drug designation subsequently receives the first FDA approval for the disease for which it has such designation, the product is entitled to orphan drug exclusive approval (or exclusivity), which means that the FDA may not approve any other applications, including a full BLA, to market the same biologic for the same indication for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan drug exclusivity. Orphan drug exclusivity does not prevent FDA from approving a different drug or biologic for the same disease or condition, or the same drug or biologic for a different disease or condition. Among the other benefits of orphan drug designation are tax credits for certain research and a waiver of the BLA application fee.

A designated orphan drug may not receive orphan drug exclusivity if it is approved for a use that is broader than the indication for which it received orphan designation. In addition, exclusive marketing rights in the United States may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition.

Post-Approval Requirements

Any products manufactured or distributed by us pursuant to FDA approvals are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to record-keeping, reporting of adverse experiences, periodic reporting, product sampling and distribution, and advertising and promotion of the product. After approval, most changes to the approved product, such as adding new indications or other labeling claims, are subject to prior FDA review and approval. There also are continuing user fee requirements, under which FDA assesses an annual program fee for each product identified in an approved BLA. Biologic manufacturers and their subcontractors are required to register their establishments with the FDA and certain state agencies, and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with cGMP, which impose certain procedural and documentation requirements upon us and our third-party manufacturers. Changes to the manufacturing process are strictly regulated, and, depending on the significance of the change, may require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMP and impose reporting requirements upon us and any third-party manufacturers that we may decide to use. Accordingly, manufacturers must continue to

expend time, money and effort in the area of production and quality control to maintain compliance with cGMP and other aspects of regulatory compliance.

The FDA may withdraw approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market. Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical studies to assess new safety risks; or imposition of distribution restrictions or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of a product, complete withdrawal of the product from the market or product recalls;
- fines, warning letters or holds on post-approval clinical studies;
- refusal of the FDA to approve pending applications or supplements to approved applications, or suspension or revocation of existing product approvals;
- product seizure or detention, or refusal of the FDA to permit the import or export of products;
- consent decrees, corporate integrity agreements, debarment or exclusion from federal healthcare programs;
- mandated modification of promotional materials and labeling and the issuance of corrective information;
- the issuance of safety alerts, Dear Healthcare Provider letters, press releases and other communications containing warnings or other safety information about the product; or
- injunctions or the imposition of civil or criminal penalties.

The FDA closely regulates the marketing, labeling, advertising and promotion of biologics. A company can make only those claims relating to safety and efficacy, purity and potency that are approved by the FDA and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off label uses. Failure to comply with these requirements can result in, among other things, adverse publicity, warning letters, corrective advertising and potential civil and criminal penalties. Physicians may prescribe legally available products for uses that are not described in the product's labeling and that differ from those tested by us and approved by the FDA. Such off-label uses are common across medical specialties. Physicians may believe that such off-label uses are the best treatment for many patients in varied circumstances. The FDA does not regulate the behavior of physicians in their choice of treatments. The FDA does, however, restrict manufacturer's communications on the subject of off-label use of their products.

Biosimilars and Reference Product Exclusivity

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, or collectively, the ACA, signed into law in 2010, includes a subtitle called the Biologics Price Competition and Innovation Act of 2009, or BPCIA, which created an abbreviated approval pathway for biological products that are biosimilar to or interchangeable with an FDA-approved reference biological product. To date, a number of biosimilars have been licensed under the BPCIA, and numerous biosimilars have been approved in Europe. The FDA has issued several guidance documents outlining an approach to review and approval of biosimilars.

Biosimilarity, which requires that there be no clinically meaningful differences between the biological product and the reference product in terms of safety, purity, and potency, can be shown through analytical studies, animal studies, and a clinical study or studies. Interchangeability requires that a product is biosimilar to the reference product and the product must demonstrate that it can be expected to produce the same clinical results as the reference product in any given patient and, for products that are administered multiple times to an individual, the biologic and the reference biologic may be alternated or switched after one has been previously administered without increasing safety risks or risks of diminished efficacy relative to exclusive use of the reference biologic. Complexities associated with the larger, and often more complex, structures of biological products, as well as the processes by which such products are manufactured, pose significant hurdles to implementation of the abbreviated approval pathway that are still being worked out by the FDA.

Under the BPCIA, an application for a biosimilar product may not be submitted to the FDA until four years following the date that the reference product was first licensed by the FDA. In addition, the approval of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first licensed. During this 12-year period of exclusivity, another company may still market a competing version of the reference product if the FDA approves a full BLA for the competing product containing that applicant's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and potency of its product. The BPCIA also created certain exclusivity periods for biosimilars approved as interchangeable products. At this juncture, it is unclear whether products deemed "interchangeable" by the FDA will, in fact, be readily substituted by pharmacies, which are governed by state pharmacy law.

A biological product can also obtain pediatric market exclusivity in the United States. Pediatric exclusivity, if granted, adds six months to existing exclusivity periods and patent terms. This six-month exclusivity, which runs from the end of other exclusivity protection or patent term, may be granted based on the voluntary completion of a pediatric study in accordance with an FDA-issued "Written Request" for such a study.

The BPCIA is complex and continues to be interpreted and implemented by the FDA. In addition, recent government proposals have sought to reduce the 12-year reference product exclusivity period. Other aspects of the BPCIA, some of which may impact the BPCIA exclusivity provisions, have also been the subject of recent litigation. As a result, the ultimate impact, implementation, and impact of the BPCIA is subject to significant uncertainty.

Other U.S. Healthcare Laws and Compliance Requirements

In the United States, our activities are potentially subject to regulation by various federal, state and local authorities in addition to the FDA, including but not limited to, the Centers for Medicare and Medicaid Services, or CMS, other divisions of the U.S. Department of Health and Human Services (such as the Office of Inspector General and the Health Resources and Service Administration), the Department of Justice, or the DOJ, and individual U.S. Attorney offices within the DOJ, and state and local governments. For example, sales, marketing and scientific/educational grant programs may have to comply with the anti-fraud and abuse provisions of the Social Security Act, the false claims laws, the privacy and security provisions of the Health Insurance Portability and Accountability Act, or HIPAA, and similar state laws, each as amended, as applicable.

The federal Anti-Kickback Statute prohibits, among other things, any person or entity, from knowingly and willfully offering, paying, soliciting or receiving any remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce or in return for purchasing, leasing, ordering or arranging for the purchase, lease or order of any item or service reimbursable, in whole or in part, under Medicare, Medicaid or other federal healthcare programs. The term remuneration has been interpreted broadly to include anything of value. The federal Anti-Kickback Statute has been interpreted to apply to arrangements between therapeutic product manufacturers on one hand and prescribers and purchasers on the other. There are a number of statutory exceptions and regulatory safe harbors protecting some common activities from prosecution. The exceptions and safe harbors are drawn narrowly and practices that involve remuneration that may be alleged to be intended to

induce prescribing, purchasing or recommending may be subject to scrutiny if they do not qualify for an exception or safe harbor. Failure to meet all of the requirements of a particular applicable statutory exception or regulatory safe harbor does not make the conduct per se illegal under the federal Anti-Kickback Statute. Instead, the legality of the arrangement will be evaluated on a case-by-case basis based on a cumulative review of all of its facts and circumstances. Our practices, including our arrangements with physicians, may not in all cases meet all of the criteria for protection under a statutory exception or regulatory safe harbor.

Additionally, the intent standard under the federal Anti-Kickback Statute was amended by the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010, or collectively, ACA, to a stricter standard such that a person or entity no longer needs to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. In addition, the ACA codified case law that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal False Claims Act, or FCA.

The federal false claims and civil monetary penalty laws, including the FCA, which can be enforced by private citizens through civil qui tam actions, prohibit any person or entity from, among other things, knowingly presenting, or causing to be presented, a false or fraudulent claim for payment to, or approval by, the federal healthcare programs, including Medicare and Medicaid, or knowingly making, using, or causing to be made or used a false record or statement material to a false or fraudulent claim to the federal government. A claim includes “any request or demand” for money or property presented to the U.S. government. For instance, historically, pharmaceutical and other healthcare companies have been prosecuted under these laws for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. Other companies have been prosecuted for causing false claims to be submitted because of the companies’ marketing of the product for unapproved, off-label, and thus generally non-reimbursable, uses.

HIPAA created additional federal criminal statutes that prohibit, among other things, knowingly and willfully executing, or attempting to execute, a scheme to defraud or to obtain, by means of false or fraudulent pretenses, representations or promises, any money or property owned by, or under the control or custody of, any healthcare benefit program, including private third-party payors, willfully obstructing a criminal investigation of a healthcare offense, and knowingly and willfully falsifying, concealing or covering up by trick, scheme or device, a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services. Like the federal Anti-Kickback Statute, the ACA amended the intent standard for certain healthcare fraud statutes under HIPAA such that a person or entity no longer needs to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation.

Also, many states have similar, and typically more prohibitive, fraud and abuse statutes or regulations that apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payor. Additionally, to the extent that our product is sold in a foreign country, we may be subject to similar foreign laws.

We may be subject to data privacy and security regulations by both the federal government and the states in which we conduct our business. HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH, and their implementing regulations, impose requirements relating to the privacy, security and transmission of individually identifiable health information on certain healthcare providers, healthcare clearinghouses, and health plans, known as covered entities, as well as independent contractors, or agents of covered entities that receive or obtain individually identifiable health information in connection with providing a service on behalf of a covered entity, known as a business associates. Among other things, HITECH makes HIPAA’s privacy and security standards directly applicable to business associates. HITECH also created four new tiers of civil monetary penalties, amended HIPAA to make civil and criminal penalties directly applicable to business associates, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce HIPAA and seek attorneys’ fees and costs

associated with pursuing federal civil actions. In addition, many state laws govern the privacy and security of health information in specified circumstances, many of which differ from each other in significant ways, are often not pre-empted by HIPAA, and may have a more prohibitive effect than HIPAA, thus complicating compliance efforts.

In addition, many pharmaceutical manufacturers must calculate and report certain price reporting metrics to the government, such as average sales price and best price. Further, these prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the United States. It is difficult to predict how Medicare coverage and reimbursement policies will be applied to our products in the future and coverage and reimbursement under different federal healthcare programs are not always consistent. Medicare reimbursement rates may also reflect budgetary constraints placed on the Medicare program.

Additionally, the federal Physician Payments Sunshine Act, or the Sunshine Act, within the ACA, and its implementing regulations, require that certain manufacturers of drugs, devices, biological and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) report annually to CMS information related to certain payments or other transfers of value made or distributed to physicians and teaching hospitals, or to entities or individuals at the request of, or designated on behalf of, the physicians and teaching hospitals and to report annually certain ownership and investment interests held by physicians and their immediate family members. In addition, many states also govern the reporting of payments or other transfers of value, many of which differ from each other in significant ways, are often not pre-empted, and may have a more prohibitive effect than the Sunshine Act, thus further complicating compliance efforts.

In order to distribute products commercially, we must comply with state laws that require the registration of manufacturers and wholesale distributors of drug and biological products in a state, including, in certain states, manufacturers and distributors who ship products into the state even if such manufacturers or distributors have no place of business within the state. Some states also impose requirements on manufacturers and distributors to establish the pedigree of product in the chain of distribution, including some states that require manufacturers and others to adopt new technology capable of tracking and tracing product as it moves through the distribution chain. Several states have enacted legislation requiring pharmaceutical and biotechnology companies to establish marketing compliance programs, file periodic reports with the state, make periodic public disclosures on sales, marketing, pricing, clinical trials and other activities, and/or register their sales representatives, as well as to prohibit pharmacies and other healthcare entities from providing certain physician prescribing data to pharmaceutical and biotechnology companies for use in sales and marketing, and to prohibit certain other sales and marketing practices. All of our activities are potentially subject to federal and state consumer protection and unfair competition laws.

Ensuring business arrangements with third parties comply with applicable healthcare laws and regulations is a costly endeavor. If our operations are found to be in violation of any of the federal and state healthcare laws described above or any other current or future governmental regulations that apply to us, we may be subject to penalties, including without limitation, civil, criminal and/or administrative penalties, damages, fines, disgorgement, individual imprisonment, exclusion from participation in government programs, such as Medicare and Medicaid, injunctions, private "qui tam" actions brought by individual whistleblowers in the name of the government, or refusal to allow us to enter into government contracts, contractual damages, reputational harm, administrative burdens, diminished profits and future earnings, additional reporting obligations and oversight if we become subject to a corporate integrity agreement or other agreement to resolve allegations of non-compliance with these laws, and the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

Coverage, Pricing and Reimbursement

Significant uncertainty exists as to the coverage and reimbursement status of any product candidates for which we may obtain regulatory approval. In the United States and in foreign markets, sales of any products for which we receive regulatory approval for commercial sale will depend, in part, on the extent to which third-party payors provide coverage and establish adequate reimbursement levels for such products. In the United States, third-party payors include federal and state healthcare programs, private managed care providers, health insurers and other organizations. Coverage and adequate reimbursement from governmental healthcare programs, such as Medicare and Medicaid in the United States, and commercial payors are critical to new product acceptance.

Third-party payors decide which therapeutics they will pay for and establish reimbursement levels. Coverage and reimbursement by a third-party payor may depend upon a number of factors, including the third-party payor's determination that use of a therapeutic is:

- a covered benefit under its health plan;
- safe, effective and medically necessary;
- appropriate for the specific patient;
- cost-effective; and
- neither experimental nor investigational.

We cannot be sure that reimbursement will be available for any product that we commercialize and, if coverage and reimbursement are available, we cannot be sure that the level of reimbursement will be adequate. Coverage may also be more limited than the purposes for which the product is approved by the FDA or comparable foreign regulatory authorities. Limited coverage and less than adequate reimbursement may reduce the demand for, or the price of, any product for which we obtain regulatory approval.

Third-party payors are increasingly challenging the price, examining the medical necessity, and reviewing the cost-effectiveness of medical products, therapies and services, in addition to questioning their safety and efficacy. Obtaining reimbursement for our products may be particularly difficult because of the higher prices often associated with branded drugs and drugs administered under the supervision of a physician. We may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of our products, in addition to the costs required to obtain FDA approvals. Our product candidates may not be considered medically necessary or cost-effective. Obtaining coverage and reimbursement approval of a product from a third-party payor is a time-consuming and costly process that could require us to provide to each payor supporting scientific, clinical and cost-effectiveness data for the use of our product on a payor-by-payor basis, with no assurance that coverage and adequate reimbursement will be obtained. A third-party payor's decision to provide coverage for a product does not imply that an adequate reimbursement rate will be approved. Additionally, in the United States there is no uniform policy among third-party payors for coverage or reimbursement. Third-party payors often rely upon Medicare coverage policy and payment limitations in setting their own coverage and reimbursement policies, but also have their own methods and approval processes. Therefore, one third-party payor's determination to provide coverage for a product does not assure that other payors will also provide coverage for the product. Adequate third-party payor reimbursement may not be available to enable us to maintain price levels sufficient to realize an appropriate return on our investment in product development. If reimbursement is not available or is available only at limited levels, we may not be able to successfully commercialize any product candidate that we successfully develop.

Certain of our products, once approved, may be administered by a physician. Under currently applicable U.S. law, certain products not usually self-administered (including injectable drugs) may be eligible for coverage

under Medicare through Medicare Part B. Medicare Part B is part of original Medicare, the federal health care program that provides health care benefits to the aged and disabled, and covers outpatient services and supplies, including certain pharmaceutical products, that are medically necessary to treat a beneficiary's health condition. As a condition of receiving Medicare Part B reimbursement for a manufacturer's eligible drugs or biologicals, the manufacturer is required to participate in other government healthcare programs, including the Medicaid Drug Rebate Program and the 340B Drug Pricing Program. The Medicaid Drug Rebate Program requires pharmaceutical manufacturers to enter into and have in effect a national rebate agreement with the Secretary of the Department of Health and Human Services as a condition for states to receive federal matching funds for the manufacturer's outpatient drugs furnished to Medicaid patients. Under the 340B Drug Pricing Program, the manufacturer must extend discounts to entities that participate in the program.

Different pricing and reimbursement schemes exist in other countries. In the European Union, governments influence the price of pharmaceutical products through their pricing and reimbursement rules and control of national health care systems that fund a large part of the cost of those products to consumers. Some jurisdictions operate positive and negative list systems under which products may only be marketed once a reimbursement price has been agreed. To obtain reimbursement or pricing approval, some of these countries may require the completion of clinical trials that compare the cost effectiveness of a particular product candidate to currently available therapies. Other member states allow companies to fix their own prices for medicines but monitor and control company profits. The downward pressure on health care costs has become intense. As a result, increasingly high barriers are being erected to the entry of new products. In addition, in some countries, cross-border imports from low-priced markets exert a commercial pressure on pricing within a country.

The marketability of any product candidates for which we receive regulatory approval for commercial sale may suffer if the government and third-party payors fail to provide coverage and adequate reimbursement. In addition, emphasis on managed care, the increasing influence of health maintenance organizations, and additional legislative changes in the United States has increased, and we expect will continue to increase, the pressure on healthcare pricing. The downward pressure on the rise in healthcare costs in general, particularly prescription medicines, medical devices and surgical procedures and other treatments, has become very intense. Coverage policies and third-party reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for one or more products for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

Healthcare Reform

In the United States and some foreign jurisdictions, there have been, and continue to be, several legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay marketing approval of product candidates, restrict or regulate post-approval activities, and affect the ability to profitably sell product candidates for which marketing approval is obtained. Among policy makers and payors in the United States and elsewhere, there is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality and/or expanding access. In the United States, the pharmaceutical industry has been a particular focus of these efforts and has been significantly affected by major legislative initiatives.

For example, the ACA has substantially changed healthcare financing and delivery by both governmental and private insurers. Among the ACA provisions of importance to the pharmaceutical and biotechnology industries, in addition to those otherwise described above, are the following:

- an annual, nondeductible fee on any entity that manufactures or imports certain specified branded prescription drugs and biologic agents apportioned among these entities according to their market share in some government healthcare programs that began in 2011;

- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program, retroactive to January 1, 2010, to 23.1% and 13% of the average manufacturer

price for most branded and generic drugs, respectively, and capped the total rebate amount for innovator drugs at 100% of the average manufacturer price;

- a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% (and 70% starting on January 1, 2019) point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturers' outpatient drugs to be covered under Medicare Part D;
- extension of manufacturers' Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations;
- expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals and by adding new mandatory eligibility categories for individuals with income at or below 133% of the federal poverty level, thereby potentially increasing manufacturers' Medicaid rebate liability;
- expansion of the entities eligible for discounts under the 340B Drug Discount Program;
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research;
- expansion of healthcare fraud and abuse laws, including the FCA and the federal Anti-Kickback Statute, new government investigative powers, and enhanced penalties for noncompliance;
- a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs that are inhaled, infused, instilled, implanted, or injected;
- requirements to report certain financial arrangements with physicians and teaching hospitals;
- a requirement to annually report certain information regarding drug samples that manufacturers and distributors provide to physicians;
- establishment of a Center for Medicare Innovation at CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug spending; and
- a licensure framework for follow on biologic products.

Some of the provisions of the ACA have yet to be implemented, and there have been legal and political challenges to certain aspects of the ACA. Since January 2017, President Trump has signed two executive orders and other directives designed to delay, circumvent, or loosen certain requirements mandated by the ACA. Concurrently, Congress has considered legislation that would repeal or repeal and replace all or part of the ACA. While Congress has not passed comprehensive repeal legislation, two bills affecting the implementation of certain taxes under the ACA have been signed into law. In December 2017, the Tax Cuts and Jobs Act of 2017 was enacted which repeals, effective January 1, 2019, the tax penalty for an individual's failure to maintain ACA-mandated health insurance, commonly referred to as the "individual mandate." Additionally, on January 22, 2018, President Trump signed a continuing resolution on appropriations for fiscal year 2018 that delayed the implementation of certain ACA-mandated fees, including the so-called "Cadillac" tax on certain high cost employer-sponsored insurance plans, the annual fee imposed on certain health insurance providers based on market share, and the medical device excise tax on non-exempt medical devices. Further, the Bipartisan Budget Act of 2018, or the BBA, among other things, amends the ACA, effective January 1, 2019, to close the coverage gap in most Medicare drug plans, commonly referred to as the "donut hole." More recently, in July 2018, CMS

published a final rule permitting further collections and payments to and from certain ACA qualified health plans and health insurance issuers under the ACA risk adjustment program in response to the outcome of federal district court litigation regarding the method CMS uses to determine this risk adjustment.

Other legislative changes have been proposed and adopted since the ACA was enacted. In August 2011, President Obama signed into law the Budget Control Act of 2011, which, among other things, included aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, which went into effect beginning on April 1, 2013 and, due to subsequent legislative amendments to the statute, including the BBA, will stay in effect through 2027 unless additional Congressional action is taken. In January 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, reduced Medicare payments to several providers, including hospitals, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

Further, there has been increasing legislative and enforcement interest in the United States with respect to specialty drug pricing practices. Specifically, there have been several recent U.S. Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to drug pricing, reduce the cost of prescription drugs under Medicare, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drugs. At the federal level, the Trump administration's budget proposal for fiscal year 2019 contains further drug price control measures that could be enacted during the 2019 budget process or in other future legislation, including, for example, measures to permit Medicare Part D plans to negotiate the price of certain drugs under Medicare Part B, to allow some states to negotiate drug prices under Medicaid, and to eliminate cost sharing for generic drugs for low-income patients. Additionally, the Trump administration released a "Blueprint" to lower drug prices and reduce out of pocket costs of drugs that contains additional proposals to increase manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products and reduce the out of pocket costs of drug products paid by consumers. The U.S. Department of Health and Human Services has already started the process of soliciting feedback on some of these measures and, at the same, is immediately implementing others under its existing authority. For example, in September 2018, CMS announced that it will allow Medicare Advantage Plans the option to use step therapy for Part B drugs beginning January 1, 2019, and in October 2018, CMS proposed a new rule that would require direct-to-consumer television advertisements of prescription drugs and biological products, for which payment is available through or under Medicare or Medicaid, to include in the advertisement the Wholesale Acquisition Cost, or list price, of that drug or biological product. Although a number of these, and other proposed measures will require authorization through additional legislation to become effective, Congress and the Trump administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. At the states level, legislatures have increasingly passed legislation and implemented regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures.

Additionally, on May 30, 2018, the Trickett Wendler, Frank Mongiello, Jordan McLinn, and Matthew Bellina Right to Try Act of 2017, or the Right to Try Act, was signed into law. The law, among other things, provides a federal framework for certain patients to access certain investigational new drug products that have completed a Phase I clinical trial and that are undergoing investigation for FDA approval. Under certain circumstances, eligible patients can seek treatment without enrolling in clinical trials and without obtaining FDA permission under the FDA expanded access program. There is no obligation for a drug manufacturer to make its drug products available to eligible patients as a result of the Right to Try Act.

The Foreign Corrupt Practices Act

The Foreign Corrupt Practices Act, or the FCPA, prohibits any U.S. individual or business from paying, offering, or authorizing payment or offering of anything of value, directly or indirectly, to any foreign official,

political party or candidate for the purpose of influencing any act or decision of the foreign entity in order to assist the individual or business in obtaining or retaining business. The FCPA also obligates companies whose securities are listed in the United States to comply with accounting provisions requiring us to maintain books and records that accurately and fairly reflect all transactions of the corporation, including international subsidiaries, and to devise and maintain an adequate system of internal accounting controls for international operations.

Additional Regulation

In addition to the foregoing, state and federal laws regarding environmental protection and hazardous substances, including the Occupational Safety and Health Act, the Resource Conservancy and Recovery Act and the Toxic Substances Control Act, affect our business. These and other laws govern our use, handling and disposal of various biological, chemical and radioactive substances used in, and wastes generated by, our operations. If our operations result in contamination of the environment or expose individuals to hazardous substances, we could be liable for damages and governmental fines. We believe that we are in material compliance with applicable environmental laws and that continued compliance therewith will not have a material adverse effect on our business. We cannot predict, however, how changes in these laws may affect our future operations.

Other Regulations

We are also subject to numerous federal, state and local laws relating to such matters as safe working conditions, manufacturing practices, environmental protection, fire hazard control, and disposal of hazardous or potentially hazardous substances. We may incur significant costs to comply with such laws and regulations now or in the future.

Employees

As of March 31, 2020, we had 149 employees, 86 of whom hold advanced degrees, including 50 with a Ph.D. and/or M.D. degree. Of these employees, 124 were engaged in research and development activities and 25 were engaged in general and administrative activities. None of our employees are represented by labor unions or covered by collective bargaining agreements. We consider our relationship with our employees to be good.

Facilities

We currently lease 53,110 square feet of office and laboratory space in San Diego, California under a lease that expires on December 31, 2029. In addition, we have entered into a lease amendment, with expected occupancy to commence in the second quarter of 2020 and expire in December 2029, for an additional 15,146 square feet of office and laboratory space in San Diego. We have also entered into a lease agreement for an additional 14,747 square feet of space to house a pilot manufacturing facility adjacent to our office and lab space, with expected occupancy to commence in the third quarter of 2020 and expire in December 2029. We believe the additional lease space is sufficient to meet our facilities needs for the foreseeable future and that any additional space we may require will be available on commercially reasonable terms.

Legal Proceedings

We are not currently a party to any material legal proceedings. From time to time, we may become involved in legal proceedings arising in the ordinary course of our business. Regardless of outcome, litigation can have an adverse impact on us due to defense and settlement costs, diversion of management resources, negative publicity, reputational harm and other factors.

MANAGEMENT

The following table sets forth information regarding our executive officers and directors as of April 15, 2020:

Name	Age	Position
Executive Officers and Employee Directors		
Eric Ostertag, M.D., Ph.D.	47	Chief Executive Officer and Director
Mark J. Gergen, J.D.	58	Chief Business Officer, Chief Financial Officer and Director
Kerry D. Ingalls	58	Chief Operating Officer
Matthew A. Spear, M.D.	53	Chief Medical Officer
Johanna M. Mylet, C.P.A.	33	Vice President, Finance
Non-Employee Directors		
David Hirsch, M.D., Ph.D.(1)	49	Director
Marcea B. Lloyd, J.D.(2)(3)	71	Director
Catherine J. Mackey, Ph.D.(1)(2)	64	Director
Sean Murphy(2)(3)	67	Director
John P. Schmid, M.B.A.(1)(3)	57	Director

(1) Member of the audit committee.
(2) Member of the compensation committee.
(3) Member of the nominating and corporate governance committee.

Executive Officers and Employee Directors

Eric Ostertag, M.D., Ph.D. Dr. Ostertag directed Poseida's spin out from Transposagen in February 2015 and has served as our Chief Executive Officer and as a member of our board of directors since May 2015. From October 2003 to July 2015, Dr. Ostertag founded and served as the Chief Executive Officer and President of Transposagen, a biotechnology company that commercializes early gene editing technology in the research reagent space. From March 2008 to July 2015, Dr. Ostertag co-founded and served as Chief Executive Officer and President of Vindico NanoBioTechnology, Inc., a biotechnology company engaged in the discovery, development, and commercialization of human therapeutics that are based on a nanometer-scale particulate technology. From 2006 to 2007, Dr. Ostertag co-founded and served as Executive Vice President of PhenoTech, Inc., a biotechnology company engaged in the discovery, development, and commercialization of reagents for diagnostic use in blood banks. Dr. Ostertag received both his Ph.D. in Molecular Biology and his M.D. from the University of Pennsylvania School of Medicine and his B.S. in Genetics from the University of Wisconsin-Madison. We believe that Dr. Ostertag's extensive experience and leadership in the life science industry qualifies him to serve on our board of directors.

Mark J. Gergen, J.D. Mr. Gergen has served as our Chief Business Officer and Chief Financial Officer since February 2018. In connection with the completion of this offering, Mr. Gergen will become our President and Chief Business Officer. From September 2016 to February 2018, Mr. Gergen initially served as the Senior Vice President and Chief Operating Officer and later as a Consultant for Halozyme, Inc., a publicly held biotechnology company focused on developing and commercializing cancer therapies that target the tumor microenvironment. From February 2013 to August 2016, Mr. Gergen served as Executive Vice President and Chief Operating Officer of Mirati Therapeutics, Inc., a publicly held clinical-stage biopharmaceutical company focused on developing a pipeline of targeted oncology products. From May 2005 to November 2012, Mr. Gergen served in senior management positions, including most recently as Senior Vice President, Corporate Development, at Amylin Pharmaceuticals, Inc., publicly held biopharmaceutical company that was focused on the development and commercialization of medicines to treat chronic diseases. From July 2003 to March 2005, Mr. Gergen served as Executive Vice President of CardioNet Inc., a cardiovascular diagnostic company. From June 1999 to May 2003, Mr. Gergen served initially as Chief Financial and Development Officer and later as Chief Restructuring Officer of Advanced Tissue Sciences, Inc., a company that engaged in the development and

manufacturing of human-based tissue products for tissue repair and transplantation. From August 1994 to June 1999, Mr. Gergen held various leadership positions at Medtronic, Inc., a medical device company. Mr. Gergen received his J.D. from the University of Minnesota Law School and his B.A. in Business Administration from Minot State University. We believe Mr. Gergen's extensive operational and transactional experience in the life science industry qualifies him to serve on our board of directors.

Kerry D. Ingalls. Mr. Ingalls has served as our Chief Operating Officer since October 2019. From October 2009 to October 2019, Mr. Ingalls worked at Amgen holding numerous leadership roles, he served most recently as Vice President, Site Operations for the United States and Puerto Rico. From October 1983 to June 2009, Mr. Ingalls served in the United States Navy with increasing roles of responsibility including working in the Office of the Secretary of Defense. Mr. Ingalls received his M.A. in International Law and Diplomacy from Tufts University and his B.S. in Mechanical Engineering from the United States Naval Academy.

Matthew A. Spear, M.D. Dr. Spear has served as our Chief Medical Officer since June 2016. From April 2016 to July 2016, Dr. Spear served as Head of Clinical Development and Vice President at Sangamo Biosciences Inc., a biotechnology company focused on the research and development of genomic therapies. From July 2014 to March 2016, Dr. Spear served as Vice President, Clinical Development and Translational Medicine at Incyte Corporation, a research company specializing in oncology product development and innovative medicines. From January 2012 to July 2014, Dr. Spear served as Head of Oncology and Head of Biotherapeutics at Sunovion Pharmaceuticals, Inc., a pharmaceutical company focused on products for central nervous system disorders. From 2005 to 2011, Dr. Spear served as Chief Medical Officer, at Nereus Pharmaceuticals, Inc., or Nereus, a pharmaceutical company focused on identifying and synthesizing biologically active compounds and drug candidates derived from marine microbiology and integrated technologies. Prior to joining Nereus, Dr. Spear led multiple oncology clinical development programs at Pfizer Inc. and was an Associate Professor at the Keck School of Medicine of the University of Southern California, the University of California San Diego School of Medicine and the University of California San Diego Cancer Center. Dr. Spear has also served on the National Institute of Health and National Cancer Institute study sections, biotechnology and pharmaceutical advisory boards, various Institutional Review Boards and Scientific Review Committees, and scientific journal editorial review committees related to cancer, as well as authored numerous scientific papers and patents. Dr. Spear's residency and fellowship was conducted in the Massachusetts General Hospital Harvard University program. Dr. Spear received his M.D. from Stanford University Medical School and his B.A. in Biology from Johns Hopkins University.

Johanna M. Mylet, C.P.A. Ms. Mylet has served as our Vice President, Finance since March 2018 and as our Controller from June 2015 to March 2018. In connection with the completion of this offering, Ms. Mylet will become our Senior Vice President, Finance. From April 2014 to June 2015, Ms. Mylet served as Controller at HUYA Biosciences, LLC, a pharmaceutical company focused on developing oncology and cardiovascular drug candidates sourced in China. From September 2008 to April 2014, Ms. Mylet served as Audit Manager of Grant Thornton, LLP, an accounting and advisory firm. Ms. Mylet received her B.S. in Accountancy from the University of San Diego and is a Certified Public Accountant.

Non-Employee Directors

David Hirsch, M.D., Ph.D. Dr. Hirsch has served as a member of our board of directors since March 2018. Since 2007, Dr. Hirsch has served as a Managing Director of Longitude Capital Management Co., LLC, a private investment firm Dr. Hirsch co-founded, where he focuses on investments in biotechnology. From February 2005 to July 2006, Dr. Hirsch served as a Vice President in the life sciences practice of Pequot Capital Management. From September 2001 to February 2005, Dr. Hirsch served as an Engagement Manager in the pharmaceutical practice of McKinsey & Company. Dr. Hirsch currently serves on the boards of directors of the following publicly held companies: Collegium Pharmaceutical, Inc., since 2012, Tricida, Inc., since 2016, and Molecular Templates, Inc., since 2017. Dr. Hirsch also serves on the boards of directors of the following private companies: Rapid Micro Biosystems, Inc. and Velicept Therapeutics, Inc. Dr. Hirsch previously served on the boards of directors of Civitas Therapeutics, Inc., Precision Therapeutics, Inc. and Zavante Therapeutics, Inc., all

companies in the life sciences industry. Dr. Hirsch received his Ph.D. in Biology from the Massachusetts Institute of Technology, his M.D. from Harvard Medical School and his B.A. in Biology from The Johns Hopkins University. We believe that Dr. Hirsch's perspective and experience as an investor and board member in the life sciences industry, as well as his strong medical and scientific background, qualifies him to serve on our board of directors.

Marcea B. Lloyd, J.D. Ms. Lloyd has served as a member of our board of directors since January 2019. From July 2011 to November 2012, Ms. Lloyd served as the Senior Vice President, Chief Administrative Officer and General Counsel of Amylin Pharmaceuticals, a biopharmaceutical company that was focused on the treatment of diabetes, obesity and other diseases until its sale to Bristol-Myers Squibb. Ms. Lloyd previously served as Amylin Pharmaceuticals' Senior Vice President, Government and Corporate Affairs and General Counsel from June 2008 to July 2011 and its Senior Vice President, Legal and Corporate Affairs, and General Counsel from February 2007 to June 2008. From November 2004 to February 2007, Ms. Lloyd served as Group Senior Vice President, Chief Administrative Officer, General Counsel and Secretary of VHA Inc., a network of not-for-profit healthcare organizations working in clinical, financial and operational management. Ms. Lloyd previously served as VHA Inc.'s General Counsel and Secretary from May 1999 to November 2004. From 1993 to 1999, Ms. Lloyd served as Vice President and Assistant General Counsel of Medtronic Inc., a medical device company. Ms. Lloyd previously held various other legal positions, most recently as Medtronic Inc.'s Assistant General Counsel. Ms. Lloyd has also served as Chairperson of the Executive Leadership Foundation, a former member of the board of directors for California Healthcare Institute and a former associate of the Women Business Leaders of the United States Health Care Industry Foundation. Ms. Lloyd received her B.S. and B.A. in sociology and psychology from Knox College and her J.D. from Northwestern University. We believe that Ms. Lloyd's extensive legal, administrative and operational experience in the life sciences industry qualifies her to serve on our board of directors.

Catherine J. Mackey, Ph.D. Dr. Mackey has served as a member of our board of directors since January 2019. Since July 2019, Dr. Mackey has served as a member of the board of directors of AVID Bioservices, a publicly held contract development and manufacturing organization. Since December 2017, Dr. Mackey has served as a member of the board of directors of GW Pharmaceuticals, a publicly held British biopharmaceutical company focused on the development of prescription cannabinoid-based medicines. Since June 2015, Dr. Mackey has served on the board of directors of Rady Children's Institute of Genomic Medicine. Since March 2014, Dr. Mackey has served as the chair of the board of directors of Cour Pharmaceutical Development Company, Inc., a clinical stage company advancing first-in-class therapies to achieve antigen-specific immune tolerance. From June 2014 to May 2017, Dr. Mackey served on the board of directors of Evolve Biosystems Inc., a probiotic-based biotherapeutics company. From June 2015 to September 2016, Dr. Mackey served as a member of the board of directors of Sequenom Inc. (acquired by Labcorp), a molecular diagnostics testing services company. From February 2015 to September 2016, Dr. Mackey served on the board of directors of Viventia Bio (acquired by Eleven Biotherapeutics), a company focused on advancing anti-cancer agents. From November 2011 to February 2013, Dr. Mackey served as a member of the board of directors of YM Biosciences Inc. (acquired by Gilead Sciences), a Canadian drug development company. Prior to that, from December 2010 to April 2013, Dr. Mackey served on the board of directors of Althea Technologies, Inc. (acquired by Ajinomoto Co., Inc.), a provider of contract development and manufacturing services for biopharmaceutical and parenteral products. From May 2001 to December 2010, Dr. Mackey served as Senior Vice President, Global R&D and Director, of Pfizer's La Jolla Laboratories, one of Pfizer's primary pharmaceutical research and development sites. In addition, since January 2007, Dr. Mackey has served on the board of directors of Rady Children's Hospital. Dr. Mackey received her B.S. and Ph.D. degrees in microbiology and genetics from Cornell University. We believe that Dr. Mackey's extensive experience and leadership in the biotechnology and pharmaceutical industries qualifies her to serve on our board of directors.

Sean Murphy. Mr. Murphy has served as a member of our board of directors since April 2018. Since August 2011, Mr. Murphy has been a senior advisor at Evercore Partners, an investment banking advisory firm. From December 1979 to March 2010, Mr. Murphy served as the head of corporate mergers and acquisitions and

business development at Abbott Laboratories, a company engaged in the discovery, development, manufacture and sale of a range of healthcare products. Mr. Murphy currently serves as a member of the leadership team at Malin Corporation plc and on the boards of directors of Immucor, Inc., Viamet Pharmaceuticals, Inc., Altan Pharma Limited, KNOW Bio, LLC and NeuVT Limited, all private companies in the life sciences industry. Mr. Murphy received his M.S. in Finance from the University of Illinois at Urbana-Champaign and his B.B.A. in Business Administration and Finance from Western Illinois University. We believe that Mr. Murphy's extensive experience and leadership in the life sciences and financial industries qualifies him to serve on our board of directors.

John P. Schmid, M.B.A. Mr. Schmid has served as a member of our board of directors since July 2018. From September 2013 to June 2015, Mr. Schmid served as Chief Financial Officer of Auspex Pharmaceuticals, Inc., a publicly held biopharmaceutical company that focused on developing and commercializing medicines for the treatment of orphan diseases until its sale to Teva Pharmaceutical Industries Ltd. From June 2004 to September 2013, Mr. Schmid co-founded Trius Therapeutics, a publicly held biopharmaceutical company focused on the discovery, development, and commercialization of antibiotics for serious infections, where he served as the Chief Financial Officer until its merger with Cubist Pharmaceuticals, Inc. From 1998 to 2003, Mr. Schmid served as the Chief Financial Officer of GeneFormatics, Inc., a biotechnology company. From 1995 to 1998, Mr. Schmid served as the Chief Financial Officer of Endonetics Inc., a medical device company. Mr. Schmid currently serves as a member of the boards of directors of AnaptysBio, Inc., Neos Therapeutics and Xeris Pharmaceuticals, all publicly held companies in the pharmaceutical industry. In addition, Mr. Schmid serves as chairman of the board of directors of Speak, Inc., a speakers bureau, which he helped found in 1989 and as a member of the board of directors of Forge Therapeutics, Inc., a privately held company in the pharmaceutical industry. From May 2016 to August 2018, Mr. Schmid served as a member of the board of directors of Patara Pharmaceuticals, a biotechnology company. Mr. Schmid received his M.B.A. from the University of San Diego and his B.A. in Economics from Wesleyan University. We believe that Mr. Schmid's extensive finance experience and leadership positions at multiple biopharmaceutical companies qualifies him to serve on our board of directors.

Family Relationships

There are no family relationships among any of our directors or executive officers.

Director Independence

We have applied to list our common stock on the Nasdaq Global Select Market. Our board of directors has determined that none of our non-employee directors has a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director and that each of these directors is "independent" as that term is defined under the rules of the Nasdaq Stock Market.

Dr. Osterag, our Chief Executive Officer, also serves as the chairperson of our board of directors. While the chairperson position is held by an employee director, our board of directors has determined that it is appropriate to also have a lead independent director. Our board of directors has appointed Dr. Mackey to serve as our lead independent director. As lead independent director, Dr. Mackey presides over periodic meetings of our independent directors, serves as a liaison between our Chief Executive Officer and the independent directors and performs such additional duties as our board of directors may otherwise determine and delegate.

Board Composition

Our board of directors currently consists of seven members, who were elected pursuant to the amended and restated voting agreement that we entered into with certain holders of our common stock and certain holders of our preferred stock and the related provisions of our amended and restated certificate of incorporation. The amended and restated voting agreement will terminate upon the completion of this offering, after which there

will be no further contractual obligations regarding the election of our directors. Our current directors elected to our board of directors pursuant to the amended and restated voting agreement will continue to serve as directors until their successors are duly elected and qualified by holders of our common stock.

Immediately after the completion of this offering, our board of directors will be divided into three classes with staggered three-year terms. At each annual meeting of stockholders, the directors whose terms then expire will be subject to re-election to serve until the third annual meeting following re-election. As a result, only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. Our directors will be divided among the three classes as follows:

- the Class I directors will be Dr. Mackey, Mr. Murphy and Mr. Schmid, and their terms will expire at the annual meeting of stockholders to be held in 2021;
- the Class II directors will be Ms. Lloyd and Mr. Gergen, and their terms will expire at the annual meeting of stockholders to be held in 2022; and
- the Class III directors will be Dr. Hirsch and Dr. Ostertag, and their terms will expire at the annual meeting of stockholders to be held in 2023.

Our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect upon the completion of this offering provide that only our board of directors can fill vacancies on the board, including due to increases in the size of the board. Any additional directorships resulting from an increase in the authorized number of directors would be placed among the three classes so that, as nearly as possible, each class will consist of one-third of the authorized number of directors.

The classification of our board of directors may have the effect of delaying or preventing changes in our control or management. See the section titled “Description of Capital Stock—Anti-Takeover Provisions—Certificate of Incorporation and Bylaw Provisions.”

Board Oversight of Risk

One of the key functions of our board of directors is informed oversight of our risk management process. In particular our board of directors is responsible for monitoring and assessing strategic risk exposure. Our executive officers are responsible for the day-to-day management of the material risks we face. Our board of directors administers its oversight function directly as a whole. Our board of directors will also administer its oversight through various standing committees, which will be constituted prior to the completion of this offering and address risks inherent in their respective areas of oversight. For example, our audit committee will be responsible for overseeing the management of risks associated with financial reporting, accounting and auditing matters; our compensation committee will oversee the management of risks associated with our compensation policies and programs; and our nominating and corporate governance committee will oversee the management of risks associated with director independence, conflicts of interest, composition and organization of our board of directors and director succession planning.

Board Committees

Our board of directors established an audit committee, a compensation committee and a nominating and corporate governance committee and may establish other committees to facilitate the management of our business. Members will serve on these committees until their resignation or until otherwise determined by our board of directors. Our board of directors and its committees will set schedules for meeting throughout the year and can also hold special meetings and act by written consent from time to time, as appropriate.

Our board of directors expects to delegate various responsibilities and authority to committees as generally described below. The committees will regularly report on their activities and actions to the full board of directors. Each member of each committee of our board of directors will qualify as an independent director in accordance with the listing standards of the Nasdaq Stock Market. Each committee of our board of directors has a written charter that was approved by our board of directors.

Upon the completion of this offering, copies of each charter will be posted on our website at www.poseida.com under the Investor Relations section. Information contained on our website is not incorporated by reference into this prospectus.

Audit Committee

The members of our audit committee are Dr. Hirsch, Dr. Mackey, and Mr. Schmid, and Mr. Schmid is the chair of the audit committee.

Our audit committee will assist our board of directors with its oversight of the integrity of our consolidated financial statements; our compliance with legal and regulatory requirements; the qualifications, independence and performance of the independent registered public accounting firm; the design and implementation of our financial risk assessment and risk management. Among other things, our audit committee is responsible for reviewing and discussing with our management the adequacy and effectiveness of our disclosure controls and procedures. Our audit committee also will discuss with our management and independent registered public accounting firm the annual audit plan and scope of audit activities, scope and timing of the annual audit of our consolidated financial statements, and the results of the audit, quarterly reviews of our consolidated financial statements and, as appropriate, initiates inquiries into certain aspects of our financial affairs.

Our audit committee is responsible for establishing and overseeing procedures for the receipt, retention and treatment of any complaints regarding accounting, internal accounting controls or auditing matters, as well as for the confidential and anonymous submissions by our employees of concerns regarding questionable accounting or auditing matters. In addition, our audit committee has direct responsibility for the appointment, compensation, retention and oversight of the work of our independent registered public accounting firm. Our audit committee has sole authority to approve the hiring and discharging of our independent registered public accounting firm, all audit engagement terms and fees and all permissible non-audit engagements with the independent auditor. Our audit committee will review and oversee all related person transactions in accordance with our policies and procedures.

Our board of directors has determined that Mr. Schmid qualifies as an audit committee financial expert within the meaning of SEC regulations and meets the financial sophistication requirements of the Nasdaq Stock Market listing standards. In making this determination, our board has considered Mr. Schmid’s prior experience, business acumen and independence. Both our independent registered public accounting firm and management will periodically meet privately with our audit committee.

We believe that the composition and functioning of our audit committee complies with all applicable requirements of Section 404 of the Sarbanes-Oxley Act of 2002, and all applicable Securities and Exchange Commission, or SEC, and Nasdaq rules and regulations. We intend to comply with future requirements to the extent they become applicable to us.

Compensation Committee

The members of our compensation committee are Ms. Lloyd, Dr. Mackey and Mr. Murphy, and Dr. Mackey is the chair of the compensation committee.

Each member of our compensation committee is independent under the rules and regulations of the SEC and the listing standards of the Nasdaq Stock Market applicable to compensation committee members. Our compensation committee will assist our board of directors with its oversight of the forms and amount of compensation for our executive officers (including officers reporting under Section 16 of the Securities Exchange Act of 1934, as amended, or the Exchange Act), the administration of our equity and non-equity incentive plans for employees and other service providers and certain other matters related to our compensation programs. Our compensation committee, among other responsibilities, evaluates the performance of our chief executive officer and, in consultation with him, evaluates the performance of our other executive officers (including officers reporting under Section 16 of the Exchange Act).

Nominating and Corporate Governance Committee

The members of our nominating and corporate governance committee are Ms. Lloyd, Mr. Murphy and Mr. Schmid, and Ms. Lloyd is the chair of the nominating and corporate governance committee.

Each member of our nominating and governance committee is independent under the rules and regulations of the SEC and the listing standards of the Nasdaq Stock Market, applicable to nominating and governance committee members. Our nominating and corporate governance committee will assist our board of directors with its oversight of and identification of individuals qualified to become members of our board of directors, consistent with criteria approved by our board of directors, and selects, or recommends that our board of directors selects, director nominees; develops and recommends to our board of directors a set of corporate governance guidelines and oversees the evaluation of our board of directors.

Code of Conduct

Our board of directors has adopted a Code of Business Conduct and Ethics, or the Code of Ethics, that will become effective upon the completion of this offering. The Code of Ethics will apply to all of our employees and directors. Upon the completion of this offering, the full text of the Code of Ethics will be posted on our website at www.poseida.com under the Investor Relations section. We intend to disclose future amendments to, or waivers of, the Code of Ethics, as and to the extent required by SEC regulations, at the same location on our website identified above or in public filings. Information contained on our website is not incorporated by reference into this prospectus, and you should not consider information contained on our website to be part of this prospectus or in deciding whether to purchase shares of our common stock.

Compensation Committee Interlocks and Insider Participation

None of our current or former executive officers serve as a member of the compensation committee. None of our officers serve, or have served during the last completed fiscal year, on the board of directors or compensation committee, or other committee serving an equivalent function, of any other entity that has one or more of its executive officers serving as a member of our board of directors or our compensation committee. For a description of transactions between us and members of our compensation committee and affiliates of such members, see the section titled “Certain Relationships and Related Party Transactions.”

Limitation on Liability and Indemnification Matters

Our amended and restated certificate of incorporation and our amended and restated bylaws, both of which will become effective immediately prior to the completion of this offering, limit our directors’ liability, and provide for indemnification of our directors and officers to the fullest extent permitted under the Delaware General Corporation Law. The Delaware General Corporation Law provides that directors of a corporation will not be personally liable for monetary damages for breach of their fiduciary duties as directors, except for liability for any:

- transaction from which the director derives an improper personal benefit;

- act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payment of dividends or redemption of shares; or
- breach of a director's duty of loyalty to the corporation or its stockholders.

These limitations of liability do not apply to liabilities arising under federal securities laws and do not affect the availability of equitable remedies such as injunctive relief or recession.

The Delaware General Corporation Law and our amended and restated bylaws provide that we will, in certain situations, indemnify our directors and officers and may indemnify other employees and other agents, to the fullest extent permitted by law. Any indemnified person is also entitled, subject to certain limitations, to advancement, direct payment or reimbursement of reasonable expenses (including attorneys' fees and disbursements) in advance of the final disposition of the proceeding.

In addition, we have entered, and intend to continue to enter, into separate indemnification agreements with our directors and officers. These indemnification agreements, among other things, require us to indemnify our directors and officers for certain expenses, including attorneys' fees, judgments, fines and settlement amounts incurred by a director or officer in any action or proceeding arising out of their services as a director or officer, or any other company or enterprise to which the person provides services at our request.

We maintain a directors' and officers' insurance policy pursuant to which our directors and officers are insured against liability for actions taken in their capacities as directors and officers. We believe that these provisions in our amended and restated certificate of incorporation and amended and restated bylaws and these indemnification agreements are necessary to attract and retain qualified persons as directors and officers.

The limitation of liability and indemnification provisions in our amended and restated certificate of incorporation and amended and restated bylaws may discourage stockholders from bringing a lawsuit against our directors for breach of their fiduciary duty. They may also reduce the likelihood of derivative litigation against our directors and officers, even though an action, if successful, might benefit us and other stockholders. Further, a stockholder's investment may be adversely affected to the extent that we pay the costs of settlement and damage awards against directors and officers as required by these indemnification provisions.

Insofar as indemnification for liabilities arising under the Securities Act of 1933, as amended, or the Securities Act, may be permitted to directors, officers or control persons, in the opinion of the SEC, such indemnification is against public policy, as expressed in the Securities Act and is therefore unenforceable.

EXECUTIVE AND DIRECTOR COMPENSATION

Our named executive officers for the year ended December 31, 2019, which consist of our principal executive officer and our two other most highly compensated executive officers as of December 31, 2019, are as follows: Eric Ostertag, M.D., Ph.D., our Chief Executive Officer; Matthew A. Spear, M.D., our Chief Medical Officer; and Kerry D. Ingalls, our Chief Operating Officer.

Summary Compensation Table

The following table shows information regarding the compensation of our named executive officers for services performed in the years ended December 31, 2018 and 2019.

Name and Principal Position	Year	Salary ($)	Option Awards ($)(1)	Non-Equity Incentive Plan Compensation ($)(2)	All Other Compensation ($)(3)	Total ($)
Eric Ostertag, M.D., Ph.D.	2019	$ 462,419	$ 2,024,600	$ 232,337	$ 8,400	$ 2,727,756
President and Chief Executive Officer	2018	$ 451,676	—	$ 225,570	$ 8,250	$ 685,496
Matthew A. Spear, M.D.	2019	$ 417,540	$ 1,822,500	$ 172,000	$ 8,400	$ 2,420,440
Chief Medical Officer	2018	$ 385,878	—	$ 116,045	$ 15,645	$ 517,568
Kerry D. Ingalls	2019	$ 87,500	$ 1,080,000	$ 34,981	$ —	$ 1,202,481
Chief Operating Officer(4)						

(1) In accordance with SEC rules, this column reflects the aggregate grant date fair value of the stock option awards granted during 2019. This amount has been computed in accordance with Financial Accounting Standards Board, or FASB, Accounting Standards Codification, or ASC, Topic 718. Assumptions used in the calculation of this amount are described in Note 11 to our consolidated financial statements included elsewhere in this prospectus. This amount does not reflect the actual economic value that will be realized by Dr. Ostertag, Dr. Spear and Mr. Ingalls upon the vesting of the stock options, the exercise of the stock options, or the sale of the common stock underlying such stock options.

(2) Amounts shown represent annual performance-based bonuses. For more information, see the subsection below titled "—Annual Performance-Based Bonus Opportunity."

(3) Amounts shown represent the following: (a) for Dr. Ostertag, $8,250 for 401(k) matching contributions in 2018 and $8,400 in 401(k) matching contributions in 2019 and (b) for Dr. Spear, $8,250 for 401(k) matching contributions and $7,395 for certain relocation benefits paid in connection with his relocation to San Diego in 2018 and $8,400 for 401(k) matching contributions in 2019.

(4) Mr. Ingalls commenced employment with us in October 2019.

Annual Base Salary

The base salaries of all of our named executive officers are reviewed from time to time and adjusted when our board of directors or compensation committee determines an adjustment is appropriate. The 2019 annual base salaries for our named executive officers are set forth in the table below.

Name	2019 Base Salary
Eric Ostertag, M.D., Ph.D.	$ 464,674
Matthew A. Spear, M.D.(1)	$ 430,000
Kerry D. Ingalls	$ 420,000

(1) Effective as of January 1, 2019, Dr. Spear's annual base salary was $398,421. Dr. Spear's annual base salary was increased to $430,000 effective as of May 1, 2019.

Annual Performance-Based Bonus Opportunity

In addition to base salaries, our named executive officers are eligible to receive annual performance-based cash bonuses, which are designed to provide appropriate incentives to our executives to achieve defined

annual performance goals and to reward our executives for individual achievement towards these goals. The annual performance-based bonus each named executive officer is eligible to receive is generally based on the extent to which we achieve the corporate goals that our board of directors or compensation committee establishes each year. At the end of the year, our board of directors or compensation committee reviews our corporate performance and that of each executive officer and determines the actual bonus payout to be awarded to each executive officer.

For 2019, the target bonus for Dr. Ostertag was 50% of annual base salary, and for Dr. Spear and Mr. Ingalls, was 40% of annual base salary. Our corporate performance objectives for 2019, as established by our board of directors, included accomplishments in research and development operations, finance and administrative goals and expansion in business development. In December 2019, our board of directors determined that we had attained a 100% overall achievement level of our corporate goals and accordingly awarded bonuses to each of our named executive officers at 100% of their target bonus level based on our achievements in 2019. Mr. Ingalls' bonus payout was prorated for the period of time he was employed with us in 2019.

Equity Compensation

We award stock options to our named executive officers as the long-term incentive component of our compensation program. We typically grant equity awards to new hires upon their commencing employment with us and we may grant equity awards to our continuing employees when we determine appropriate for incentive and retention purposes. Stock options allow employees to purchase shares of our common stock at a price per share at least equal to the fair market value of our common stock on the date of grant and may or may not be intended to qualify as "incentive stock options" for U.S. federal income tax purposes. In the past, our board of directors has determined the fair market value of our common stock based upon inputs including valuation reports prepared by third-party valuation firms. Generally, our equity awards vest over four years, subject to the employee's continued employment with us on each vesting date.

In September 2019, we granted Dr. Spear a stock option to purchase 216,519 shares of common stock. The option has an exercise price of $12.23 per share and vests as follows: 12.5% of the shares subject to the option vest on the six-month anniversary of the vesting commencement date, and the remaining shares vest in 42 equal monthly installments thereafter, subject to Dr. Spear remaining in service with us as of each vesting date.

In October 2019, we granted Mr. Ingalls a stock option to purchase 128,307 shares of common stock in connection with the commencement of his employment with us. The option has an exercise price of $12.23 per share and vests as follows: 12.5% of the shares subject to the option vest on the six-month anniversary of the vesting commencement date of grant, and the remaining shares vest in 42 equal monthly installments thereafter, subject to Mr. Ingalls remaining in service with us as of each vesting date.

In December 2019, we granted Dr. Ostertag a stock option to purchase 240,576 shares of common stock. The option grant consisted of 32,076 incentive stock options with an exercise price of $13.47 per share, which was at least 110% of the fair market value of our common stock on the grant date because Dr. Ostertag owns stock possessing more than 10% of our total combined voting power, and 208,500 non-qualified stock options with an exercise price of $12.23 per share. Both option grants vest as follows: 12.5% of the shares subject to the option vest on the six-month anniversary of the vesting commencement date, and the remaining shares vest in 42 equal monthly installments thereafter, subject to Dr. Ostertag remaining in service with us as of each vesting date.

Agreements with Our Named Executive Officers

Below are descriptions of our employment agreements and offer letters with our named executive officers. The employment of each of our named executive officers is at will. For a discussion of the severance pay and other benefits to be provided in connection with a termination of employment and/or a change in control

under the arrangements with our named executive officers, see the subsection titled "—Potential Payments upon Termination or Change in Control" below.

Dr. Ostertag. We entered into an executive employment agreement with Dr. Ostertag in June 2015, which governs the terms of his employment with us. Pursuant to his agreement, Dr. Ostertag was entitled to an initial annual base salary of $400,000 (which has been subsequently increased, as described above), and is eligible to receive an annual performance bonus with a target amount of 50% of his annual base salary, as determined by our board of directors. In addition, Dr. Ostertag's agreement provides for the grant of a stock option to purchase 1,127,461 shares of our common stock, which was granted in 2015.

Dr. Spear. We entered into an offer letter with Dr. Spear in June 2016, which governs the terms of his employment with us. Pursuant to his offer letter, Dr. Spear was entitled to an initial annual base salary of $370,000 (which has been subsequently increased, as described above), and is eligible to receive an annual performance bonus with a target amount of 30% of his annual base salary (which has been subsequently increased, as described above), as determined by our board of directors or compensation committee. In addition, Dr. Spear's offer letter provides for the grant of a stock option to purchase 144,346 shares of our common stock, which was granted in 2016.

Mr. Ingalls. We entered into an offer letter with Mr. Ingalls in July 2019, which governs the terms of his employment with us. Pursuant to his offer letter, Mr. Ingalls is entitled to an initial annual base salary of $420,000 and is eligible to receive an annual performance bonus with a target amount of 40% of his annual base salary, as determined by our board of directors. In addition, Mr. Ingalls' offer letter provides for the grant of a stock option to purchase 128,307 shares of our common stock, which was granted in 2019.

Potential Payments upon Termination or Change in Control

Regardless of the manner in which a named executive officer's service terminates, each named executive officer is entitled to receive amounts previously earned during his term of service, including unpaid salary and cash out of unused vacation. In addition, Dr. Ostertag is entitled to certain severance benefits under his executive employment agreement, subject to his execution of a release of claims, return of all company property, compliance with post-termination obligations and resignation from all positions with us.

Pursuant to his employment agreement, if we terminate Dr. Ostertag's employment without cause or he resigns for good reason (each as defined in the employment agreement), then he will be entitled to receive continued payment of his then-current base salary for 12 months. In addition, we are required to pay the premiums for Dr. Ostertag and his dependents of group health insurance COBRA continuation coverage for up to 12 months. Notwithstanding the foregoing, if we terminate Dr. Ostertag's employment without cause or Dr. Ostertag resigns for good reason within one month prior to or one year following a change in control, Dr. Ostertag will instead be entitled to a lump sum cash payment equal to his then-current base salary for 12 months, immediate vesting of all outstanding options and restricted stock and the extension of the option exercise period for 24 months and payment of premiums for Dr. Ostertag and his dependents of group health insurance COBRA continuation for up to 12 months. Additionally, pursuant to his agreement, Dr. Ostertag is also entitled to certain tax gross-up payments with respect to any benefits he receives in connection with a change in control.

Effective in connection with this offering, each of our named executive officers will become eligible to receive benefits under the terms of our Severance and Change in Control Plan adopted by the board of directors in June 2020, or the Severance Plan. The Severance Plan provides for severance and/or change in control benefits to the named executive officers upon (i) a "change in control termination" or (ii) a "regular termination" (each as described below). Upon a change in control termination, each of our named executive officers is entitled to a lump sum payment equal to a portion of his base salary (18 months for Dr. Ostertag and 12 months for each of Dr. Spear and Mr. Ingalls), a lump sum payment equal to his target cash bonus, accelerated vesting of

outstanding time-vesting equity awards, payment of COBRA premiums for a period of time (up to 18 months for Dr. Ostertag and 12 months for each of Dr. Spear and Mr. Ingalls) and, for Dr. Ostertag an extension of the post-termination exercise period applicable to Dr. Ostertag's outstanding equity awards for up to 24 months following such termination. To the extent an equity award is not assumed, continued or substituted for in the event of certain change in control transactions and the executive's employment is not terminated as of immediately prior to such change in control, the vesting of such equity award will also accelerate in full (and for equity awards subject to performance vesting, performance will be deemed to be achieved at target, unless otherwise provided in individual award documents). Upon a regular termination, each of our named executive officers is entitled to a lump sum payment equal to a portion of his base salary (12 months for Dr. Ostertag and 9 months for each of Dr. Spear and Mr. Ingalls) and payment of COBRA premiums for a period of time (12 months for Dr. Ostertag and 9 months for each of Dr. Spear and Mr. Ingalls). All severance benefits under the Severance Plan are subject to the executive's execution of an effective release of claims against the company.

For purposes of the Severance Plan, a "regular termination" is an involuntary termination (i.e., a termination other than for cause (and not as a result of death or disability) or a resignation for good reason, as defined in the Severance Plan) that does not occur during the period of time beginning one month prior to, and ending 12 months following, a "change in control" (as defined in the 2020 Plan), or the "change in control period." A "change in control termination" is a regular termination that occurs during the change in control period.

Each of our named executive officers holds equity awards granted subject to the general terms of our 2015 Equity Incentive Plan, or the 2015 Plan. A description of the termination and change in control provisions of the 2015 Plan and the applicable awards granted to each named executive officer is provided below under "—Equity Plans" and "—Outstanding Equity Awards at Fiscal Year-End."

Other Compensation

Our named executive officers are eligible to participate in our health and welfare plans to the same extent as all full-time employees generally. We generally do not provide our named executive officers with significant perquisites or other personal benefits.

Our named executive officers did not participate in, or earn any benefits under, a nonqualified deferred compensation plan sponsored by us during the fiscal year ended December 31, 2019. Our board of directors may elect to provide our officers and other employees with nonqualified defined contribution or other nonqualified deferred compensation benefits in the future if it determines that doing so is in our best interests.

We have established a 401(k) tax-deferred savings plan, which permits participants, including our named executive officers, to make contributions by salary deduction pursuant to Section 401(k) of the Internal Revenue Code of 1986, as amended, or the Code. We are responsible for administrative costs of the 401(k) plan. For 2019, we matched 50% of the first 6% of the participant's eligible compensation contributed to the 401(k) plan, up to a cap of $8,400. Matching contributions will vest annually over 4 years. We may, at our discretion, make additional matching or profit sharing contributions to the 401(k) plan.

Outstanding Equity Awards at Fiscal Year-End

The following table presents information concerning outstanding equity awards held by our named executive officers as of December 31, 2019, all of which were granted under our 2015 Plan.

		Option Awards			
Name	Vesting Commencement Date	Number of Securities Underlying Unexercised Options Exercisable (#)	Number of Securities Underlying Unexercised Options Unexercisable (#)	Option Exercise Price per Share(1)	Option Expiration Date
Eric Ostertag, M.D., Ph.D.	5/4/2015	93,955	—	$ 0.33	5/3/2020
	2/29/2016(2)	64,720	2,813	$ 1.29	2/28/2021
	2/29/2016(2)	109,396	4,757	$ 1.17	2/28/2026
	12/11/2019(2)	—	32,076	$ 13.47	12/10/2024
	12/11/2019(2)	—	208,500	$ 12.23	12/10/2029
Matthew A. Spear, M.D.	6/27/2016(2)	126,303	18,043	$ 1.32	6/19/2026
	5/01/2019(2)	31,575	184,943	$ 12.23	9/04/2029
Kerry D. Ingalls	10/16/2019(2)	—	128,307	$ 12.23	10/16/2029

(1) All of the option awards were granted with a per share exercise price equal to the fair market value of one share of our common stock on the date of grant, as determined in good faith by our board of directors. Incentive stock options granted to Dr. Ostertag were granted with a per share exercise price equal to 110% of the fair market value of one share of our common stock on the applicable grant date given his combined voting power of our stock exceeded 10% at the time of grant.

(2) Options vest as follows: 12.5% of the shares vest on the six month anniversary of the vesting commencement date and the remaining shares vest in 42 equal monthly installments, subject to the optionee remaining an advisor, director or employee of our company on each monthly vesting date.

There were no repricings or cancellations of any of our named executive officers' outstanding equity awards during the fiscal year ended December 31, 2019. We did not engage in modifications to any of our named executive officers' outstanding equity awards during the fiscal year ended December 31, 2019.

Equity Plans

2020 Equity Incentive Plan

Our board of directors adopted our 2020 Equity Incentive Plan, or the 2020 Plan, in July 2020 and our stockholders approved our 2020 Plan in July 2020. Our 2020 Plan is a successor to and continuation of our 2015 Plan. No stock awards may be granted under the 2020 Plan until the date of the underwriting agreement related to this offering. Once the 2020 Plan is effective, no further grants will be made under the 2015 Plan.

Awards. Our 2020 Plan provides for the grant of incentive stock options, or ISOs, within the meaning of Section 422 of the Code, to employees, including employees of any parent or subsidiary, and for the grant of nonstatutory stock options, or NSOs, stock appreciation rights, restricted stock awards, restricted stock unit awards, performance awards and other forms of awards to employees, directors and consultants, including employees and consultants of our affiliates.

Authorized Shares. Initially, the maximum number of shares of our common stock that may be issued under our 2020 Plan after it becomes effective will be 11,183,476 shares, which is the sum of (1) 4,500,000 new shares, plus (2) the number of shares that remain available for the issuance of awards under our 2015 Plan at the time our 2020 Plan becomes effective, plus (3) any shares subject to outstanding stock options or other stock awards that were granted under our 2015 Plan that terminate or expire prior to exercise or settlement; are settled in cash; are forfeited because of the failure to vest; or are reacquired or withheld (or not issued) to satisfy a tax withholding obligation or the purchase or exercise price, if any, as such shares become available from time to

time. In addition, the number of shares of our common stock reserved for issuance under our 2020 Plan will automatically increase on January 1 of each calendar year, starting on January 1, 2021 through January 1, 2030, in an amount equal to the lesser of (1) 5% of the total number of shares of our common stock outstanding on the last day of the calendar month before the date of each automatic increase, or (2) a lesser number of shares determined by our board of directors prior to the applicable January 1st. The maximum number of shares of our common stock that may be issued on the exercise of ISOs under our 2020 Plan is 33,550,428 shares.

Shares subject to stock awards granted under our 2020 Plan that expire or terminate without being exercised in full or that are paid out in cash rather than in shares do not reduce the number of shares available for issuance under our 2020 Plan. Shares withheld under a stock award to satisfy the exercise, strike or purchase price of a stock award or to satisfy a tax withholding obligation do not reduce the number of shares available for issuance under our 2020 Plan. If any shares of common stock issued pursuant to a stock award are forfeited back to or repurchased or reacquired by us for any reason, the shares that are forfeited or repurchased or reacquired will revert to and again become available for issuance under the 2020 Plan. Any shares previously issued which are reacquired in satisfaction of tax withholding obligations or as consideration for the exercise or purchase price of a stock award will again become available for issuance under the 2020 Plan.

The maximum number of shares of common stock subject to stock awards granted under the 2020 Plan or otherwise during any period commencing on the date of the company's annual meeting of stockholders for a particular year and ending on the day immediately prior to the date of the company's annual meeting of stockholders for the next subsequent year to any non-employee director, taken together with any cash fees paid by us to such non-employee director during such period for service on the board of directors, will not exceed $750,000 in total value (calculating the value of any such stock awards based on the grant date fair value of such stock awards for financial reporting purposes), or, with respect to the period in which a non-employee director is first appointed or elected to our board of directors, $1,000,000.

Plan Administration. Our board of directors, or a duly authorized committee of our board of directors, will administer our 2020 Plan and is referred to as the "plan administrator" herein. Our board of directors may also delegate to one or more of our officers the authority to (1) designate employees (other than officers) to receive specified stock awards and (2) determine the number of shares subject to such stock awards. Under our 2020 Plan, our board of directors has the authority to determine award recipients, grant dates, the numbers and types of stock awards to be granted, the applicable fair market value, and the provisions of each stock award, including the period of exercisability and the vesting schedule applicable to a stock award.

Under the 2020 Plan, the board of directors also generally has the authority to effect, with the consent of any materially adversely affected participant, (1) the reduction of the exercise, purchase, or strike price of any outstanding award; (2) the cancellation of any outstanding award and the grant in substitution therefore of other awards, cash, or other consideration; or (3) any other action that is treated as a repricing under generally accepted accounting principles.

Stock Options. ISOs and NSOs are granted under stock option agreements adopted by the plan administrator. The plan administrator determines the exercise price for stock options, within the terms and conditions of the 2020 Plan, provided that the exercise price of a stock option generally cannot be less than 100% of the fair market value of our common stock on the date of grant. Options granted under the 2020 Plan vest at the rate specified in the stock option agreement as determined by the plan administrator.

The plan administrator determines the term of stock options granted under the 2020 Plan, up to a maximum of 10 years. Unless the terms of an optionholder's stock option agreement provide otherwise, if an optionholder's service relationship with us or any of our affiliates ceases for any reason other than disability, death, or cause, the optionholder may generally exercise any vested options for a period of three months following the cessation of service. This period may be extended in the event that exercise of the option is

prohibited by applicable securities laws. If an optionholder's service relationship with us or any of our affiliates ceases due to death, or an optionholder dies within a certain period following cessation of service, the optionholder or a beneficiary may generally exercise any vested options for a period of 18 months following the date of death. If an optionholder's service relationship with us or any of our affiliates ceases due to disability, the optionholder may generally exercise any vested options for a period of 12 months following the cessation of service. In the event of a termination for cause, options generally terminate upon the termination date. In no event may an option be exercised beyond the expiration of its term.

Acceptable consideration for the purchase of common stock issued upon the exercise of a stock option will be determined by the plan administrator and may include (1) cash, check, bank draft or money order, (2) a broker-assisted cashless exercise, (3) the tender of shares of our common stock previously owned by the optionholder, (4) a net exercise of the option if it is an NSO, or (5) other legal consideration approved by the plan administrator.

Unless the plan administrator provides otherwise, options generally are not transferable except by will or the laws of descent and distribution. Subject to approval of the plan administrator or a duly authorized officer, an option may be transferred pursuant to a domestic relations order.

Tax Limitations on ISOs. The aggregate fair market value, determined at the time of grant, of our common stock with respect to ISOs that are exercisable for the first time by an award holder during any calendar year under all of our stock plans may not exceed $100,000. Options or portions thereof that exceed such limit will generally be treated as NSOs. No ISO may be granted to any person who, at the time of the grant, owns or is deemed to own stock possessing more than 10% of our total combined voting power or that of any of our affiliates unless (1) the option exercise price is at least 110% of the fair market value of the stock subject to the option on the date of grant, and (2) the term of the ISO does not exceed five years from the date of grant.

Restricted Stock Unit Awards. Restricted stock unit awards are granted under restricted stock unit award agreements adopted by the plan administrator. Restricted stock unit awards may be granted in consideration for any form of legal consideration that may be acceptable to our board of directors and permissible under applicable law. A restricted stock unit award may be settled by cash, delivery of stock, a combination of cash and stock as deemed appropriate by the plan administrator, or in any other form of consideration set forth in the restricted stock unit award agreement. Additionally, dividend equivalents may be credited in respect of shares covered by a restricted stock unit award. Except as otherwise provided in the applicable award agreement, restricted stock unit awards that have not vested will be forfeited once the participant's continuous service ends for any reason.

Restricted Stock Awards. Restricted stock awards are granted under restricted stock award agreements adopted by the plan administrator. A restricted stock award may be awarded in consideration for cash, check, bank draft or money order, past or future services to us, or any other form of legal consideration that may be acceptable to our board of directors and permissible under applicable law. The plan administrator determines the terms and conditions of restricted stock awards, including vesting and forfeiture terms. If a participant's service relationship with us ends for any reason, we may receive any or all of the shares of common stock held by the participant that have not vested as of the date the participant terminates service with us through a forfeiture condition or a repurchase right.

Stock Appreciation Rights. Stock appreciation rights are granted under stock appreciation right agreements adopted by the plan administrator. The plan administrator determines the purchase price or strike price for a stock appreciation right, which generally cannot be less than 100% of the fair market value of our common stock on the date of grant. A stock appreciation right granted under the 2020 Plan vests at the rate specified in the stock appreciation right agreement as determined by the plan administrator. Stock appreciation rights may be settled in cash or shares of common stock.

The plan administrator determines the term of stock appreciation rights granted under the 2020 Plan, up to a maximum of 10 years. If a participant's service relationship with us or any of our affiliates ceases for any reason other than cause, disability, or death, the participant may generally exercise any vested stock appreciation right for a period of three months following the cessation of service. This period may be further extended in the event that exercise of the stock appreciation right following such a termination of service is prohibited by applicable securities laws. If a participant's service relationship with us, or any of our affiliates, ceases due to disability or death, or a participant dies within a certain period following cessation of service, the participant or a beneficiary may generally exercise any vested stock appreciation right for a period of 12 months in the event of disability and 18 months in the event of death. In the event of a termination for cause, stock appreciation rights generally terminate immediately upon the occurrence of the event giving rise to the termination of the individual for cause. In no event may a stock appreciation right be exercised beyond the expiration of its term.

Performance Awards. The 2020 Plan permits the grant of performance awards that may be settled in stock, cash or other property. Performance awards may be structured so that the stock or cash will be issued or paid only following the achievement of certain pre-established performance goals during a designated performance period. Performance awards that are settled in cash or other property are not required to be valued in whole or in part by reference to, or otherwise based on, the common stock.

The performance goals may be based any measure of performance selected by the board of directors. The performance goals may be based on company-wide performance or performance of one or more business units, divisions, affiliates, or business segments, and may be either absolute or relative to the performance of one or more comparable companies or the performance of one or more relevant indices. Unless specified otherwise by the board of directors at the time the performance award is granted, the board will appropriately make adjustments in the method of calculating the attainment of performance goals as follows: (1) to exclude restructuring and/or other nonrecurring charges; (2) to exclude exchange rate effects; (3) to exclude the effects of changes to generally accepted accounting principles; (4) to exclude the effects of any statutory adjustments to corporate tax rates; (5) to exclude the effects of items that are "unusual" in nature or occur "infrequently" as determined under generally accepted accounting principles; (6) to exclude the dilutive effects of acquisitions or joint ventures; (7) to assume that any portion of our business which is divested achieved performance objectives at targeted levels during the balance of a performance period following such divestiture; (8) to exclude the effect of any change in the outstanding shares of our common stock by reason of any stock dividend or split, stock repurchase, reorganization, recapitalization, merger, consolidation, spin-off, combination or exchange of shares or other similar corporate change, or any distributions to common stockholders other than regular cash dividends; (9) to exclude the effects of stock based compensation and the award of bonuses under our bonus plans; (10) to exclude costs incurred in connection with potential acquisitions or divestitures that are required to be expensed under generally accepted accounting principles; and (11) to exclude the goodwill and intangible asset impairment charges that are required to be recorded under generally accepted accounting principles.

Other Stock Awards. The plan administrator may grant other awards based in whole or in part by reference to our common stock. The plan administrator will set the number of shares under the stock award (or cash equivalent) and all other terms and conditions of such awards.

Changes to Capital Structure. In the event there is a specified type of change in our capital structure, such as a stock split, reverse stock split, or recapitalization, appropriate adjustments will be made to (1) the class and maximum number of shares reserved for issuance under the 2020 Plan, (2) the class and maximum number of shares by which the share reserve may increase automatically each year, (3) the class and maximum number of shares that may be issued on the exercise of ISOs, and (4) the class and number of shares and exercise price, strike price, or purchase price, if applicable, of all outstanding stock awards.

Corporate Transactions. The following applies to stock awards under the 2020 Plan in the event of a corporate transaction (as defined in the 2020 Plan), unless otherwise provided in a participant's stock award agreement or other written agreement with us or one of our affiliates or unless otherwise expressly provided by the plan administrator at the time of grant.

In the event of a corporate transaction, any stock awards outstanding under the 2020 Plan may be assumed, continued or substituted for by any surviving or acquiring corporation (or its parent company), and any reacquisition or repurchase rights held by us with respect to the stock award may be assigned to the successor (or its parent company). If the surviving or acquiring corporation (or its parent company) does not assume, continue or substitute for such stock awards, then (1) with respect to any such stock awards that are held by participants whose continuous service has not terminated prior to the effective time of the corporate transaction, or current participants, the vesting (and exercisability, if applicable) of such stock awards will be accelerated in full to a date prior to the effective time of the corporate transaction (contingent upon the effectiveness of the corporate transaction), and such stock awards will terminate if not exercised (if applicable) at or prior to the effective time of the corporate transaction, and any reacquisition or repurchase rights held by us with respect to such stock awards will lapse (contingent upon the effectiveness of the corporate transaction), and (2) any such stock awards that are held by persons other than current participants will terminate if not exercised (if applicable) prior to the effective time of the corporate transaction, except that any reacquisition or repurchase rights held by us with respect to such stock awards will not terminate and may continue to be exercised notwithstanding the corporate transaction.

In the event a stock award will terminate if not exercised prior to the effective time of a corporate transaction, the plan administrator may provide, in its sole discretion, that the holder of such stock award may not exercise such stock award but instead will receive a payment equal in value to the excess (if any) of (1) the per share amount payable to holders of common stock in connection with the corporate transaction, over (2) any per share exercise price payable by such holder provided in the stock award, if applicable. In addition, any escrow, holdback, earn out or similar provisions in the definitive agreement for the corporate transaction may apply to such payment to the same extent and in the same manner as such provisions apply to the holders of common stock.

Under the 2020 Plan, a corporate transaction is generally the consummation of: (1) a sale of all or substantially all of our assets, (2) the sale or disposition of more than 50% of our outstanding securities, (3) a merger or consolidation where we do not survive the transaction, or (4) a merger or consolidation where we do survive the transaction but the shares of our common stock outstanding immediately before such transaction are converted or exchanged into other property by virtue of the transaction.

Change in Control. Awards granted under the 2020 Plan may be subject to acceleration of vesting and exercisability upon or after a change in control as may be provided in the applicable stock award agreement or in any other written agreement between us or any affiliate and the participant, but in the absence of such provision, no such acceleration will automatically occur. Under the 2020 Plan, a change in control is generally (1) the acquisition by any person or company of more than 50% of the combined voting power of our then outstanding stock, (2) a merger, consolidation or similar transaction in which our stockholders immediately before the transaction do not own, directly or indirectly, more than 50% of the combined voting power of the surviving entity (or the parent of the surviving entity) in substantially the same proportions as their ownership immediately prior to such transaction, (3) a sale, lease, exclusive license or other disposition of all or substantially all of our assets other than to an entity more than 50% of the combined voting power of which is owned by our stockholders in substantially the same proportions as their ownership of our outstanding voting securities immediately prior to such transaction, or (4) when a majority of our board of directors becomes comprised of individuals who were not serving on our board of directors on the date of the underwriting agreement related to this offering, or the incumbent board, or whose nomination, appointment, or election was not approved by a majority of the incumbent board still in office.

Plan Amendment or Termination. Our board of directors has the authority to amend, suspend, or terminate our 2020 Plan, provided that such action does not materially impair the existing rights of any participant without such participant's written consent. Certain material amendments also require the approval of our stockholders. No ISOs may be granted after the tenth anniversary of the date our board of directors adopts our 2020 Plan. No stock awards may be granted under our 2020 Plan while it is suspended or after it is terminated.

2015 Equity Incentive Plan

Our board of directors adopted our 2015 Plan in February 2015, and our stockholders approved our 2015 Plan in May 2015. Our 2015 Plan was most recently amended by our board of directors and stockholders in June 2020. As of March 31, 2020, there were 424,480 shares remaining available for the future grant of stock awards under our 2015 Plan; the June 2020 amendment increased the shares remaining available by 2,405,773 shares. As of March 31, 2020, there were outstanding stock options covering a total of 3,853,223 shares of our common stock that were granted under our 2015 Plan. We expect that any shares remaining available for issuance under the 2015 Plan will become available for issuance under the 2020 Plan in connection with this offering.

Stock Awards. Our 2015 Plan provides for the grant of ISOs within the meaning of Section 422 of the Code to employees, including employees of any parent or subsidiary, and for the grant of NSOs, stock appreciation rights, restricted stock awards and restricted stock units awards to employees, directors and consultants, including employees and consultants of our affiliates. To date, we have only granted stock options under the 2015 Plan.

Authorized Shares. Subject to certain capitalization adjustments, the aggregate number of shares of common stock that may be issued pursuant to stock awards under the 2015 Plan will not exceed 9,185,813 shares. The maximum number of shares of our common stock that may be issued pursuant to the exercise of ISOs under our 2015 Plan is 9,185,813 shares.

Shares subject to stock awards granted under our 2015 Plan that expire or otherwise terminate without being exercised in full or that are settled in cash rather than in shares do not reduce or otherwise offset the number of shares available for issuance under our 2015 Plan. Additionally, if any shares issued pursuant to a stock award are forfeited back to or repurchased because of the failure to meet a contingency or condition required to vest, then the shares that are forfeited or repurchased will revert to and again become available for issuance under the 2015 Plan. This includes shares used to pay the exercise price of a stock award or to satisfy the tax withholding obligations related to a stock award.

Plan Administration. Our board of directors, or a duly authorized committee of our board of directors to which the board delegates its administrative authority, will administer our 2015 Plan and is referred to as the "plan administrator" herein. The plan administrator may also delegate to one or more of our officers the authority to (1) designate employees (including officers) to receive specified options and stock appreciation rights (and to the extent permitted by applicable law, other stock awards) and (2) determine the number of shares subject to such stock awards; provided, however, that the board resolutions regarding such delegation must specify the total number of shares that may be subject to awards granted by such officer, and provided further, that no officer may grant an award under the 2015 Plan to himself or herself. Under our 2015 Plan, the plan administrator has the authority to, among other things, determine award recipients, dates of grant, the numbers and types of stock awards to be granted, the applicable fair market value and the provisions of each stock award, including the period of their exercisability and the vesting schedule applicable to a stock award, to construe and interpret the 2015 Plan and awards granted thereunder (and to establish, amend and revoke any rules and regulations for the administration of the 2015 Plan), and to accelerate awards.

Under the 2015 Plan, the plan administrator also generally has the authority to effect, with the consent of any adversely affected participant, (1) the reduction of the exercise or strike price of any outstanding option or stock appreciation right; (2) the cancellation of any outstanding option or stock appreciation right and the grant in substitution therefore of other awards, cash, or other consideration; or (3) any other action that is treated as a repricing under generally accepted accounting principles.

Stock Options. ISOs and NSOs are granted under stock option agreements adopted by the plan administrator. The plan administrator determines the exercise price for stock options, within the terms and conditions of the 2015 Plan, provided that the exercise price of a stock option generally cannot be less than 100% of the fair market value of our common stock on the date of grant (or 110% of the fair market value for certain

major stockholders). Options granted under the 2015 Plan vest at the rate specified in the stock option agreement as determined by the plan administrator.

The plan administrator determines the term of stock options granted under the 2015 Plan, up to a maximum of 10 years (or five years, for certain major stockholders). If an optionholder's service relationship with us or any of our affiliates ceases for any reason other than disability, death or cause, the optionholder may generally exercise any vested options for a period of up to three months following the cessation of service. This period may be extended in the event that exercise of the option is prohibited by applicable securities laws or our insider trading policy.

If an optionholder's service relationship with us or any of our affiliates ceases due to death, or an optionholder dies within a certain period following cessation of service, the optionholder or a beneficiary may generally exercise any vested options for a period of up to 18 months following the date of death. If an optionholder's service relationship with us or any of our affiliates ceases due to disability, the optionholder may generally exercise any vested options for a period of up to 12 months following the cessation of service. In the event of a termination for cause, options generally terminate upon the termination date. In no event may an option be exercised beyond the expiration of its term.

Acceptable consideration for the purchase of common stock issued upon the exercise of a stock option will be determined by the plan administrator and may include (1) cash, check, bank draft or money order payable to us, (2) a broker-assisted cashless exercise, (3) the tender of shares of our common stock previously owned by the optionholder, (4) a net exercise of the option if it is an NSO, (5) a deferred payment arrangement, or (6) other legal consideration approved by the plan administrator.

Unless the plan administrator provides otherwise, options generally are not transferable except by will or the laws of descent and distribution. Subject to approval of the plan administrator or a duly authorized designee in each case, (1) an option may be transferred pursuant to a domestic relations order and (2) an optionholder may designate a beneficiary who may exercise the option following the optionholder's death.

Tax Limitations on ISOs. The aggregate fair market value, determined at the time of grant, of our common stock with respect to ISOs that are exercisable for the first time by an optionholder during any calendar year under all of our stock plans may not exceed $100,000. Options or portions thereof that exceed such limit will generally be treated as NSOs. No ISO may be granted to any person who, at the time of the grant, owns or is deemed to own stock possessing more than 10% of our total combined voting power or that of any of our affiliates unless (1) the option exercise price is at least 110% of the fair market value of the stock subject to the option on the date of grant, and (2) the term of the ISO does not exceed five years from the date of grant.

Restricted Stock Unit Awards. Restricted stock unit awards are granted under restricted stock unit award agreements adopted by the plan administrator. Restricted stock unit awards may be granted in consideration for any form of legal consideration that may be acceptable to our board of directors and permissible under applicable law. A restricted stock unit awards may be settled by cash, delivery of stock, a combination of cash and stock as deemed appropriate by the plan administrator, or in any other form of consideration set forth in the restricted stock unit award agreement. Additionally, dividend equivalents may be credited in respect of shares covered by a restricted stock unit award. Except as otherwise provided in the applicable award agreement, restricted stock unit awards that have not vested will be forfeited once the participant's continuous service ends for any reason.

Restricted Stock Awards. Restricted stock awards are granted under restricted stock award agreements adopted by the plan administrator. A restricted stock award may be awarded in consideration for cash or cash equivalents, past or future services to us, or any other form of legal consideration that may be acceptable to our board of directors and permissible under applicable law. The plan administrator determines the terms and conditions of restricted stock awards, including vesting and forfeiture terms. If a participant's service relationship with us ends for any reason, we may receive any or all of the shares of common stock held by the participant that

have not vested as of the date the participant terminates service with us through a forfeiture condition or a repurchase right.

Changes to Capital Structure. In the event of a capitalization adjustment, the board of directors, in its discretion, will make appropriate and proportionate adjustments to (1) the class and maximum number of shares reserved for issuance under the 2015 Plan, (2) the class and maximum number of shares that may be issued on the exercise of ISOs, and (3) the class and number of shares and exercise price, strike price, or purchase price, if applicable, of all outstanding stock awards. For purposes of the 2015 Plan, capitalization adjustment generally means any change that is made in (or other events occurring with respect to) our common stock subject to the 2015 Plan or any award without the receipt of consideration by us through merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large non-recurring cash dividend, stock split, reverse stock split, liquidating dividend, combination or exchange of shares, change in corporate structure, or other similar equity restructuring transaction (within the meaning of FASB ASC Topic 718).

Corporate Transactions. Our 2015 Plan provides that in the event of a corporate transaction, unless otherwise provided in an award agreement or other written agreement between us and the award holder, the plan administrator may take one or more of the following actions with respect to such stock awards:

- arrange for the assumption, continuation, or substitution of a stock award by a surviving or acquiring corporation;
- arrange for the assignment of any reacquisition or repurchase rights held by us to the surviving or acquiring corporation;
- accelerate the vesting, in whole or in part, of the stock award and provide for its termination if not exercised (if applicable) at or before the effective time of the transaction;
- arrange for the lapse of any reacquisition or repurchase rights held by us with respect to the stock award;
- cancel or arrange for the cancellation of the stock award, to the extent not vested or exercised before the effective time of the transaction, in exchange for such cash consideration, if any, as the board of directors may consider appropriate; and
- make a payment equal to the excess, if any, of (1) the value of the property the participant would have received on exercise of the award, over (2) any exercise price payable by the participant in connection with the exercise.

The plan administrator is not obligated to treat all stock awards in the same manner and is not obligated to treat all participants in the same manner.

Under the 2015 Plan, a corporate transaction is generally defined as the consummation, in a single transaction or in a series of related transactions, of: (1) a sale or other disposition of all or substantially all of our assets, (2) the sale or disposition of at least 50% of our outstanding securities, (3) a merger or consolidation where we do not survive the transaction, or (4) a merger, consolidation or similar transaction where we do survive the transaction but the shares of our common stock outstanding immediately before such transaction are converted or exchanged into other property by virtue of the transaction.

Change in Control. A stock award may be subject to additional acceleration of vesting and exercisability upon or after a change in control as may be provided in an applicable award agreement or other written agreement, but in the absence of such provision, no such acceleration will occur. Under the 2015 Plan, a change in control is generally defined as (1) the acquisition by a person or entity of more than 50% of the combined voting power of our then outstanding stock other than by merger, consolidation or similar transaction, (2) a consummated merger, consolidation or similar transaction in which our stockholders immediately before

the transaction do not own, directly or indirectly, more than 50% of the combined voting power of the surviving entity (or the parent of the surviving entity) in substantially the same proportions as their ownership immediately prior to such transaction, or (3) a consummated sale, lease, exclusive license or other disposition of all or substantially all of our consolidated assets other than to an entity more than 50% of the combined voting power of which is owned by our stockholders in substantially the same proportions as their ownership of our outstanding voting securities immediately prior to such transaction.

Plan Amendment or Termination. Our board of directors has the authority to amend, suspend, or terminate our 2015 Plan, provided that such action does not impair the existing rights of any participant without such participant's written consent. Certain material amendments also require the approval of our stockholders. Unless terminated sooner, the 2015 Plan will automatically terminate on February 4, 2025. No stock awards may be granted under our 2015 Plan while it is suspended or after it is terminated.

2020 Employee Stock Purchase Plan

Our board of directors adopted, and our stockholders approved, our 2020 Employee Stock Purchase Plan, or 2020 ESPP, in July 2020. The 2020 ESPP will become effective immediately prior to and contingent upon the date of the underwriting agreement related to this offering. The purpose of the 2020 ESPP is to secure the services of new employees, to retain the services of existing employees, and to provide incentives for such individuals to exert maximum efforts toward our success and that of our affiliates. The 2020 ESPP is intended to qualify as an "employee stock purchase plan" within the meaning of Section 423 of the Code for U.S. employees.

Share Reserve. Following this offering, the 2020 ESPP authorizes the issuance of up to 615,000 shares of our common stock under purchase rights granted to our employees or to employees of any of our designated affiliates. The number of shares of our common stock reserved for issuance will automatically increase on January 1 of each calendar year, beginning on January 1, 2021 through January 1, 2030, by the lesser of (1) 1% of the total number of shares of our common stock outstanding on the last day of the calendar month before the date of the automatic increase, and (2) 1,230,000 shares; provided that before the date of any such increase, our board of directors may determine that such increase will be less than the amount set forth in clauses (1) and (2). As of the date hereof, no shares of our common stock have been purchased under the 2020 ESPP.

Administration. Our board of directors administers the 2020 ESPP and may delegate its authority to administer the 2020 ESPP to our compensation committee. The 2020 ESPP is implemented through a series of offerings under which eligible employees are granted purchase rights to purchase shares of our common stock on specified dates during such offerings. Under the 2020 ESPP, we may specify offerings with durations of not more than 27 months, and may specify shorter purchase periods within each offering. Each offering will have one or more purchase dates on which shares of our common stock will be purchased for employees participating in the offering. An offering under the 2020 ESPP may be terminated under certain circumstances.

Payroll Deductions. Generally, all regular employees, including executive officers, employed by us or by any of our designated affiliates, may participate in the 2020 ESPP and may contribute, normally through payroll deductions, up to 15% of their earnings (as defined in the 2020 ESPP) for the purchase of our common stock under the 2020 ESPP. Unless otherwise determined by our board of directors, common stock will be purchased for the accounts of employees participating in the 2020 ESPP at a price per share that is at least the lesser of (1) 85% of the fair market value of a share of our common stock on the first date of an offering, or (2) 85% of the fair market value of a share of our common stock on the date of purchase.

Limitations. Employees may have to satisfy one or more of the following service requirements before participating in the 2020 ESPP, as determined by our board of directors, including: (1) being customarily employed for more than 20 hours per week, (2) being customarily employed for more than five months per calendar year, or (3) continuous employment with us or one of our affiliates for a period of time (not to exceed two years). No employee may purchase shares under the 2020 ESPP at a rate in excess of $25,000 worth of our common stock based on the fair market value per share of our common stock at the beginning of an offering for

each calendar year such a purchase right is outstanding. Finally, no employee will be eligible for the grant of any purchase rights under the 2020 ESPP if immediately after such rights are granted, such employee has voting power over 5% or more of our outstanding capital stock measured by vote or value under Section 424(d) of the Code.

Changes to Capital Structure. In the event that there occurs a change in our capital structure through such actions as a stock split, merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, liquidating dividend, combination of shares, exchange of shares, change in corporate structure, or similar transaction, the board of directors will make appropriate adjustments to: (1) the class(es) and maximum number of shares reserved under the 2020 ESPP, (2) the class(es) and maximum number of shares by which the share reserve may increase automatically each year, (3) the class(es) and number of shares subject to and purchase price applicable to outstanding offerings and purchase rights, and (4) the class(es) and number of shares that are subject to purchase limits under ongoing offerings.

Corporate Transactions. In the event of certain significant corporate transactions, any then-outstanding rights to purchase our stock under the 2020 ESPP may be assumed, continued, or substituted for by any surviving or acquiring entity (or its parent company). If the surviving or acquiring entity (or its parent company) elects not to assume, continue, or substitute for such purchase rights, then the participants' accumulated payroll contributions will be used to purchase shares of our common stock within 10 business days before such corporate transaction, and such purchase rights will terminate immediately.

Under the 2020 ESPP, a corporate transaction is generally the consummation of: (1) a sale of all or substantially all of our assets, (2) the sale or disposition of more than 50% of our outstanding securities, (3) a merger or consolidation where we do not survive the transaction, and (4) a merger or consolidation where we do survive the transaction but the shares of our common stock outstanding immediately before such transaction are converted or exchanged into other property by virtue of the transaction.

2020 ESPP Amendment or Termination. Our board of directors has the authority to amend or terminate our 2020 ESPP, provided that except in certain circumstances such amendment or termination may not materially impair any outstanding purchase rights without the holder's consent. We will obtain stockholder approval of any amendment to our 2020 ESPP as required by applicable law or listing requirements.

Director Compensation

The following table sets forth in summary form information concerning the compensation that we paid or awarded during the year ended December 31, 2019 to each of our non-employee directors who served on our board of directors during 2019:

Name	Fees Earned or Paid in Cash ($)	Option Awards ($)(1)(2)	Total ($)
John Schmid	$ 45,000	$133,200	$178,200
Noah Berkowitz, M.D.(3)	—	—	—
Sean Murphy	—	—	—
David Hirsch, M.D., Ph.D.	—	—	—
Marcea B. Lloyd	$ 40,000	$504,800	$544,800
Catherine J. Mackey, Ph.D.	$ 40,000	$504,800	$544,800

(1) In accordance with SEC rules, this column reflects the aggregate grant date fair value of the stock option awards granted during 2019. These amounts have been computed in accordance with FASB ASC Topic 718. Assumptions used in the calculation of these amounts are described in Note 11 to our consolidated financial statements included elsewhere in this prospectus. These amounts do not reflect the actual economic value that will be realized by the director upon the vesting of the stock options, the exercise of the stock options, or the sale of the common stock underlying such stock options.

(2) As of December 31, 2019, the aggregate number of shares underlying outstanding options to purchase our common stock held by our non-employee directors were: Mr. Schmid, 48,115, Ms. Lloyd, 48,115, and Dr. Mackey, 48,115, and Drs. Berkowitz and Hirsch and Mr. Murphy did not hold any options to purchase shares of our common stock. As of December 31, 2019, none of our non-employee directors held other unvested stock awards.
(3) Dr. Berkowitz resigned from our board of directors in January 2020.

We have reimbursed and will continue to reimburse all of our non-employee directors for their reasonable out-of-pocket costs and expenses incurred in connection with attending board meetings.

In July 2018, we entered into a board services agreement with Mr. Schmid, pursuant to which Mr. Schmid is entitled to an annual cash retainer of $45,000 for his services as a member of the board of directors and chairperson of the audit committee. In July 2018, pursuant to the agreement, we granted Mr. Schmid a stock option to purchase 32,076 shares of common stock. The option has an exercise price of $12.00 per share and vests as follows: 12.5% of the shares subject to the option vest on the six-month anniversary of the vesting commencement date, and the remaining shares vest in 42 equal monthly installments thereafter, subject to Mr. Schmid remaining in service with us as of each vesting date. In January 2019, we entered into a board services agreement with each of Ms. Lloyd and Dr. Mackey, pursuant to which Ms. Lloyd and Dr. Mackey is each entitled to an annual cash retainer of $40,000 for their services as a member of the board of directors. In January 2019, pursuant to the agreements, we granted each of Ms. Lloyd and Dr. Mackey a stock option to purchase 32,076 shares of common stock. The option grants each have an exercise price of $16.55 per share and each option grant vests in 36 equal monthly installments, subject to Ms. Lloyd and Dr. Mackey, as applicable, remaining in service with us as of each monthly vesting date. The board services agreements with each of Mr. Schmid, Ms. Lloyd and Dr. Mackey will terminate immediately prior to the closing of this offering.

In June 2019, we granted Ms. Lloyd, Dr. Mackey and Mr. Schmid each an option to purchase 16,038 shares of common stock. The option grants each have an exercise price of $11.73 per share and each vests in 12 equal monthly installments, subject to Ms. Lloyd, Dr. Mackey and Mr. Schmid, as applicable, remaining in service with us as of each monthly vesting date.

Our board of directors adopted a non-employee director compensation policy in July 2020 that will become effective upon the execution and delivery of the underwriting agreement related to this offering and will be applicable to all of our non-employee directors. This compensation policy provides that each such non-employee director will receive the following compensation for service on our board of directors:

- an annual cash retainer of $40,000;
- an additional annual cash retainer of $30,000 for service as independent chairman of the board of directors;
- an additional annual cash retainer of $20,000 for service as lead independent director;
- an additional annual cash retainer of $7,500, $5,000 and $4,000 for service as a member of the audit committee, compensation committee and the nominating and corporate governance committee, respectively;
- an additional annual cash retainer of $15,000, $10,000 and $8,000 for service as chairman of the audit committee, chairman of the compensation committee and chairman of the nominating and corporate governance committee, respectively (in lieu of the committee member retainer above);
- an initial option grant to purchase 40,000 shares of our common stock, vesting in 36 equal monthly installments; and
- an annual option grant to purchase 20,000 shares of our common stock, vesting on the earlier of (i) the one year anniversary of the date of grant and (ii) the day before the next annual meeting.

Contingent and effective upon the execution and delivery of the underwriting agreement relating to this offering, each then-serving non-employee director will receive the annual option grant described above to purchase 20,000 shares of our common stock, at an exercise price per share equal to the initial public offering price.

Each of the option grants described above will be granted under our 2020 Plan, the terms of which are described in more detail above under “Executive and Director Compensation—Equity Plans—2020 Equity Incentive Plan.” Each such option grant will vest and become exercisable subject to the director’s continuous service with us, provided that each option will vest in full upon a change in control (as defined in the 2020 Plan) of the company. The term of each option will be 10 years, subject to earlier termination as provided in the 2020 Plan, provided that upon a termination of service other than for death, Disability or Cause (as each such terms is defined in the 2020 Plan), the post-termination exercise period will be 12 months from the date of termination.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

The following is a description of transactions since January 1, 2017 to which we have been a party in which the amount involved exceeded $120,000 and in which any of our executive officers, directors or beneficial holders of more than 5% of our capital stock had or will have a direct or indirect material interest, other than compensation arrangements which are described in the section titled "Executive and Director Compensation."

Relationships with Transposagen, Hera and Demeetra

We were formed in December 2014 in connection with the restructuring of Transposagen completed in February 2015, which we refer to as the Spin Out. In connection with the Spin Out, Transposagen split its business among Poseida, Hera Testing Laboratories, Inc., or Hera, and Transposagen. Dr. Ostertag, our Chief Executive Officer and a member of our board of directors, is a member of the board of directors of Transposagen, served as its Chief Executive Officer from its inception until July 2015 and, together with his affiliated entities, owns on a fully-diluted basis 74.14% of its capital stock. Dr. Ostertag is also a member of the board of directors of Hera and served as its Chief Executive Officer from inception until July 2015 and, together with his affiliated entities, owns on a fully-diluted basis 41.7% of its capital stock.

In connection with the Spin Out, we entered into license and trademark agreements with each of Transposagen and Hera providing for, among other things, a license to Transposagen under certain intellectual property held by us in the fields of bioprocessing, agricultural and industrial purposes, and the use, manufacture, and sale of reagents, cell lines, and animal models and to offer related services, and a license to Hera under certain intellectual property held by us in the fields of toxicology testing, genetic testing and reference standards. In July 2018, September 2018 and November 2018, we and Transposagen entered into various amendments of the license and trademark agreements originally entered into in connection with the Spin Out. Subsequently, Transposagen assigned its rights under certain license and trademark agreements to Demeetra AgBio, Inc., or Demeetra. Dr. Ostertag is the sole director of Demeetra, serves as its President and Secretary and together with his affiliated entities, owns on a fully-diluted basis, 62.5% of its capital stock. The material terms of these license and trademark agreements as currently in effect are summarized below.

Demeetra License Agreements

Agriculture Field Patent License Agreement. In November 2018, we entered into an amended and restated license agreement with Demeetra, as successor-in-interest to Transposagen, which was amended in November 2019, or the Agriculture Field Patent License Agreement. Under the Agriculture Field Patent License Agreement, we granted Demeetra a perpetual, irrevocable, fully paid, royalty-free, exclusive, sublicenseable (through multiple tiers, subject to certain restrictions), worldwide license under certain of our patents for certain agricultural and industrial purposes, expressly excluding exploitation of the licensed patents for generation and use of certain animal models and for any product that comprises or contains any cell or biological material that contains or has been modified by any technology claimed in the licensed patents for the prevention, treatment, or palliation of any and all diseases and conditions in humans. We also received a transferable, irrevocable, fully paid, royalty-free, exclusive, sublicensable (through multiple tiers), worldwide license from Demeetra under certain of Demeetra's patents for our practice of engineering cell- and gene-based therapeutics. Under the Agriculture Field Patent License Agreement, each party agreed to indemnify the other against third party claims arising from breach of the agreement by the indemnifying party and for the negligence or willful misconduct of the indemnifying party. Additionally, Demeetra agreed to indemnify us for claims arising from Demeetra's exploitation of products by or on behalf of Demeetra, Transposagen, either of their affiliates, or any sublicensees of Demeetra, Transposagen, or either of their affiliates. The Agriculture Field Patent License Agreement continues until expiration of the last valid claim contained in any of the patents licensed thereunder.

Agriculture Field Trademark License Agreement. In February 2015, we entered into a trademark license agreement with Demeetra, as successor-in-interest to Transposagen, which was amended in July 2018, or the

Agriculture Field Trademark License Agreement. Under the Agriculture Field Trademark License Agreement, we granted Demeetra an exclusive, perpetual, royalty-free, exclusive, transferrable, sublicenseable (through multiple tiers), right and license to use certain of our trademarks in connection with Demeetra's practice of the patents licensed to it under the Agriculture Field Patent License Agreement. The Agriculture Field Trademark License Agreement includes certain restrictions on Demeetra's use of the trademarks to protect the associated goodwill. Either party can terminate the Agriculture Field Trademark License Agreement upon written notice in the event of the uncured material breach by the other party. We also have the right to terminate the Agriculture Field Trademark License Agreement in the event of the sustained closure of Demeetra's business operations.

Hera License Agreements

Reagent/Model Field Patent License Agreement. In November 2018, we entered into an amended and restated license agreement with Hera, as successor-in-interest to Transposagen, or the Reagent/Model Field Patent License Agreement. Under the Reagent/Model Field Patent License Agreement, we granted Hera a perpetual, irrevocable, fully paid, royalty-free, exclusive, sublicenseable (through multiple tiers, subject to certain restrictions), worldwide license under certain of our patents for the use, manufacture, and sale of reagents, cell lines, and animal models and to offer related services, expressly excluding exploitation of the licensed patents for any product that comprises or contains any cell or biological material that contains or has been modified by any technology claimed in the licensed patents for the prevention, treatment, or palliation of any and all diseases and conditions in humans. We also received a transferable, irrevocable, fully paid, royalty-free, exclusive, sublicensable (through multiple tiers), worldwide license from Hera under certain of Hera's patents for our practice of engineering cell- and gene-based therapeutics. Under the Reagent/Model Field Patent License Agreement, each party agreed to indemnify the other against third party claims arising from breach of the agreement by the indemnifying party and for the negligence or willful misconduct of the indemnifying party. Additionally, Hera agreed to indemnify us for claims arising from Hera's exploitation of products by or on behalf of Hera, Transposagen, either of their affiliates, or any sublicensees of Hera, Transposagen, or either of their affiliates. The Reagent/Model Patent License Agreement continues until expiration of the last valid claim contained in any of the patents licensed thereunder.

Toxicology Field Technology License Agreement. In February 2015, we entered into a technology license agreement with Hera, as amended in July 2018, or the Toxicology Field Technology License Agreement. Under the Toxicology Field Technology License Agreement, we granted Hera a transferable, irrevocable, fully paid, royalty-free, exclusive, sublicenseable (through multiple tiers), worldwide license under certain of our patents and technology in the field of *in vivo* or *in vitro* toxicology, including the use of genetically modified animal models or cell lines for toxicology, genetic testing and reference standard uses, or the Toxicology Field. We also granted Hera a non-exclusive, sublicenseable (through multiple tiers), worldwide license under certain of our patents and technology in the fields of reagents, cellular engineering and animal model products and services, solely as necessary to develop products and services for the Toxicology Field. The fields of use licensed to Hera expressly excludes all products and services that directly or indirectly relate to the prevention, treatment or palliation of any and all diseases and conditions in humans and the manufacture of any such products and services. Hera granted us a transferable, irrevocable, fully paid, royalty-free, exclusive, sublicenseable (through multiple tiers), worldwide license under certain of Hera's patents and technology in all fields of use other than the Toxicology Field. Each party has the sole right to prosecute, maintain and enforce its licensed patents, and Hera agreed to reimburse a reasonable portion of the filing, prosecution and maintenance costs incurred by us related to our patents licensed to Hera under the Toxicology Field Technology License Agreement.

Reagent/Model Field Trademark License Agreement. In February 2015, we entered into a trademark license agreement with Hera, as successor-in-interest to Transposagen's rights thereunder with respect to the reagent/model field, which was amended in July 2018 and September 2018, or the Reagent/Model Field Trademark License Agreement. Under the Reagent/Model Field Trademark License Agreement, we granted Hera an exclusive, perpetual, royalty-free, exclusive, transferrable, sublicenseable (through multiple tiers), right and license to use certain of our trademarks in connection with Hera's practice of the patents licensed to it under the

Reagent/Model Field Patent License Agreement. The Reagent/Model Field Trademark License Agreement includes certain restrictions on Hera's use of the trademarks to protect the associated goodwill. Either party can terminate the Reagent/Model Field Trademark License Agreement upon written notice in the event of the uncured material breach by the other party. We also have the right to terminate the Reagent/Model Field Trademark License Agreement in the event of the sustained closure of Hera's business operations.

Toxicology Field Trademark License Agreement. In February 2015, we also entered into a trademark license agreement with Hera, which was amended in July 2018, or the Toxicology Field Trademark License Agreement, under which we granted Hera an exclusive, perpetual, royalty-free, exclusive, transferrable, sublicenseable (through multiple tiers), right and license to use certain of our trademarks in connection Hera's practice of the patent rights licensed to it under the Toxicology Field Technology License Agreement. The Toxicology Field Trademark License Agreement includes certain restrictions on Hera's use of our trademarks to protect the associated goodwill. Either party can terminate the Toxicology Field Trademark License Agreement upon written notice in the event of an uncured material breach of the other party. We may also terminate the Toxicology Field Trademark License Agreement immediately in the event of the sustained closure of Hera's business operations or if Hera makes an assignment for the benefit of creditors, files for bankruptcy or reorganization, is placed in the hands of a receiver, or has an involuntary bankruptcy petition against it that has not been dismissed, vacated, or stayed within a certain time period.

Transposagen License Agreements

Bioprocessing Field Patent License Agreement. In September 2018, we entered into an amended and restated license agreement with Transposagen, or the Bioprocessing Field Patent License Agreement. Under the Bioprocessing Field Patent License Agreement, we granted Transposagen a perpetual, irrevocable, fully paid, royalty-free, exclusive, sublicenseable (through multiple tiers, subject to certain restrictions), worldwide license under certain of our patents in the field of bioprocessing for the production of human therapeutics, expressly excluding exploitation any cell-lines that contains or has been modified by any technology claimed in the licensed patents and/or modified vectors in any therapeutic product. Under the Bioprocessing Field Patent License Agreement, each party agreed to indemnify the other against third party claims arising from breach of the agreement by the indemnifying party and for the negligence or willful misconduct of the indemnifying party. Additionally, Transposagen agreed to indemnify us for claims arising from Transposagen's exploitation of products by or on behalf of Transposagen, its affiliates, or its or their sublicensees. The Bioprocessing Field Patent License Agreement continues until expiration of the last valid claim contained in any of the patents licensed thereunder. In September 2018, Transposagen assigned its rights under the Bioprocessing Field Patent License Agreement to Lonza Group, or Lonza.

Bioprocessing Field Trademark License. In September 2018, Transposagen assigned to Lonza its rights under a trademark license agreement we entered into with Transposagen in February 2015, as amended in July 2018 and September 2018, to use our piggyBac trademark in connection with certain of Lonza's products and services in the field of bioprocessing for the production of human therapeutics.

Acquisition of Vindico

In October 2016, we acquired Vindico NanoBioTechnology, LLC (formerly known as Vindico NanoBioTechnology, Inc.), or Vindico, pursuant to an agreement and plan of merger and reorganization among us, Vindico and the parties thereto, as amended, or the Vindico Merger Agreement. Dr. Ostertag served as Vindico's President and Chief Executive Officer from its inception until July 2015 and as member of its board of directors until it was acquired by us. Under the Vindico Merger Agreement, we paid an aggregate of $1,050,000 to the former Vindico stockholders, subject to certain deductions, and issued an aggregate of 1,216,647 shares of our common stock to the former stockholders of Vindico. As a result of his former ownership of Vindico's capital stock, Dr. Ostertag received $579,674 and 499,507 shares of our common stock pursuant to the Vindico Merger Agreement.

Preferred Stock Financings

In July 2017, we issued and sold to investors an aggregate of 3,253,645 shares of our Series A-1 preferred stock at a purchase price of $3.43 per share, for aggregate consideration of $11.2 million. In March 2018, we issued and sold to investors across two closings an aggregate of 5,249,568 shares of our Series B preferred stock at a purchase price of $5.81 per share, for aggregate consideration of $30.5 million. From March 2019 to July 2019, we issued and sold to investors across four closings an aggregate of 14,734,774 shares of our Series C preferred stock at a purchase price of $10.18 per share, for aggregate consideration of $150.0 million.

The participants in the preferred stock financings included the following executive officers and members of our board of directors and holders of more than 5% of our capital stock or entities affiliated with them. The following table sets forth the aggregate number of shares of preferred stock issued to these related parties in the preferred stock financings:

Participants	Shares of Series A-1 Preferred Stock	Shares of Series B Preferred Stock	Shares of Series C Preferred Stock	Total Purchase Price
Longitude Venture Partners III, L.P.(1)	—	2,581,755	491,159	$ 19,999,996
Malin Life Sciences Holdings Limited(2)	1,457,725	860,585	392,927	$ 43,999,994
Novartis Pharma AG	—	—	7,367,387	$ 75,000,000
Transposagen Biopharmaceuticals, Inc.(3)	437,318	—	—	$ 1,500,001

(1) Dr. Hirsch, a member of our board of directors, is a member of Longitude Capital Partners III, LLC, the general partner of Longitude Venture Partners III, L.P.
(2) Mr. Murphy, a member of our board of directors, currently serves as a member of the leadership team at Malin Corporation plc, the ultimate parent company of Malin Life Sciences Holdings Limited.
(3) Dr. Ostertag was the founder and Chief Executive Officer of Transposagen and is currently a majority stockholder of Transposagen.

Investor Agreements

In connection with our preferred stock financings, we entered into an amended and restated investor rights agreement, amended and restated voting agreement and amended and restated right of first refusal and co-sale agreement containing voting rights, information rights, rights of first refusal and co-sale and registration rights, among other things, with certain of our stockholders. These rights will terminate upon the completion of this offering, except for the registration rights as more fully described in the section titled “Description of Capital Stock—Registration Rights.”

Management Rights Letters

In connection with our sale of our preferred stock, we entered into management rights letters with certain purchasers of our preferred stock, including holders of more than 5% of our capital stock and entities with which certain of our directors are affiliated, pursuant to which such entities were granted certain management rights, including the right to consult with and advise our management on significant business issues, review our operating plans, examine our books and records and inspect our facilities. These management rights will terminate upon the completion of this offering.

Indemnification Agreements

Our amended and restated certificate of incorporation, which will be effective upon the completion of this offering, will contain provisions limiting the liability of directors, and our amended and restated bylaws, which will be effective upon the completion of this offering, will provide that we will indemnify each of our directors to the fullest extent permitted under Delaware law. Our amended and restated certificate of incorporation and amended and restated bylaws will also provide our board of directors with discretion to indemnify our officers and employees when determined appropriate by our board of directors.

We intend to enter into indemnification agreements with each of our directors and executive officers and certain other employees. The indemnification agreements will provide that we will indemnify each of our directors, executive officers and such other employees against any and all expenses incurred by that director, executive officer or other employee because of his or her status as one of our directors, executive officers or other employees, to the fullest extent permitted by Delaware law, our amended and restated certificate of incorporation and our amended and restated bylaws. In addition, the indemnification agreements will provide that, to the fullest extent permitted by Delaware law, we will advance all expenses incurred by our directors, executive officers and other employees in connection with a legal proceeding involving his or her status as a director, executive officer or employee.

Policies and Procedures for Related Party Transactions

Our audit committee has the primary responsibility for the review, approval and oversight of any "related party transaction," which is any transaction, arrangement or relationship (or series of similar transactions, arrangements, or relationships) in which we are, were or will be a participant and the amount involved exceeds $120,000, and in which the related person has, had or will have a direct or indirect material interest. We have adopted a written related party transaction policy that will be effective upon the completion of this offering. Under our related party transaction policy, our management will be required to submit any related person transaction not previously approved or ratified by our audit committee to our audit committee. In approving or rejecting the proposed transactions, our audit committee will take into account all of the relevant facts and circumstances available, including, but not limited to the risks, costs and benefits to us, the impact on any director's independence, the terms of the transaction, the availability of other sources for comparable services or products and the terms available to or from unrelated third parties. The audit committee will approve only those related party transactions that, in light of the known facts and circumstances, are in, or are not inconsistent with, the best interests of our company and our stockholders.

PRINCIPAL STOCKHOLDERS

The following table sets forth certain information with respect to the beneficial ownership of our common stock as of June 24, 2020, and as adjusted to reflect the sale of common stock offered by us in this offering, for:

- each of our named executive officers;
- each of our directors;
- all of our executive officers and directors as a group; and
- each stockholder known by us to be the beneficial owner of more than 5% of our outstanding shares of common stock.

We have determined beneficial ownership in accordance with the rules of the SEC. Except as indicated in the footnotes below, we believe, based on the information furnished to us, that the persons and entities named in the table below have sole voting and investment power with respect to all shares of common stock that they beneficially own, subject to applicable community property laws.

Applicable percentage ownership is based on 47,815,886 shares of common stock outstanding at June 24, 2020, after giving effect to the automatic conversion of all outstanding shares of preferred stock as of that date into an aggregate of 34,445,108 shares of our common stock. For purposes of computing percentage ownership after this offering, we have assumed that (1) 10,000,000 shares of common stock will be issued by us in this offering, (2) the underwriters will not exercise their option to purchase additional shares, and (3) none of our executive officers, directors or stockholders who beneficially own more than five percent of our common stock will participate in this offering. In computing the number of shares of common stock beneficially owned by a person or entity and the percentage ownership of that person or entity, we deemed to be outstanding all shares of common stock subject to options held by that person or entity that are currently exercisable or that will become exercisable within 60 days of June 24, 2020. We did not deem these shares outstanding, however, such shares were included for the purpose of computing the percentage ownership of any other person or entity. Unless otherwise indicated, the address of each beneficial owner listed in the table below is c/o Poseida Therapeutics, Inc., 9390 Towne Centre Drive, Suite 200, San Diego, CA 92121.

Name and Address of Beneficial Owner	Number of Shares Beneficially Owned	Percentage of Shares Beneficially Owned	
		Before Offering	After Offering
Greater than 5% Stockholders			
Malin Life Sciences Holdings Limited(1)	9,188,125	19.2%	15.9%
Entities affiliated with FMR LLC(2)	6,016,263	12.6%	10.4%
Novartis Pharma AG(3)	5,908,089	12.4%	10.2%
Eric Ostertag Living Trust dated March 30, 2016(4)	3,972,217	8.3%	6.9%
Titan LLC(5)	3,645,111	7.6%	6.3%
Entities affiliated with Pentwater Capital Management(6)	2,468,087	5.2%	4.3%
Longitude Venture Partners III, L.P.(7)	2,464,245	5.2%	4.3%
Directors and Named Executive Officers			
Eric Ostertag, M.D., Ph.D.(8)	10,144,501	21.1%	17.5%
Matthew A. Spear, M.D.(9)	212,008	*	*
Kerry D. Ingalls(10)	26,730	*	*
Mark J. Gergen, J.D.(11)	195,969	*	*
David Hirsch, M.D., Ph.D.(12)	2,464,244	5.2%	4.3%
Sean Murphy(1)(13)	9,188,123	19.2%	15.9%
John Schmid(14)	32,744	*	*
Catherine J. Mackey, Ph.D.(15)	32,967	*	*
Marcea B. Lloyd, J.D.(16)	32,967	*	*
All current executive officers and directors as a group (10 persons)(17)	22,412,637	46.8%	38.7%

* Represents beneficial ownership of less than 1%.

(1) Represents shares of common stock issuable upon conversion of preferred stock held by Malin Holdings, a wholly owned subsidiary of Malin Corporation plc, or Malin, and may be deemed to be beneficially owned by Malin. Malin may be deemed to share voting and investment power over our securities held by Malin Holdings. Mr. Murphy currently serves as a member of the leadership team at Malin. Each of Malin and Mr. Murphy disclaims beneficial ownership of these securities except to the extent of its or his pecuniary interest therein. The address of Malin Holdings is The Lennox Building, 50 Richmond Street South, Dublin 2, Ireland.

(2) Consists of (i) 214,051 shares of common stock issuable upon conversion of preferred stock held by Fidelity Mt. Vernon Street Trust: Fidelity Series Growth Company Fund, (ii) 906,572 shares of common stock issuable upon conversion of preferred stock held by Fidelity Mt. Vernon Street Trust: Fidelity Growth Company Fund, (iii) 970,392 shares of common stock issuable upon conversion of preferred stock held by Fidelity Growth Company Commingled Pool, by Fidelity Management Trust Company, as Trustee, (iv) 110,056 shares of common stock issuable upon conversion of preferred stock held by Fidelity Mt. Vernon Street Trust: Fidelity Growth Company K6 Fund, (v) 513,583 shares of common stock issuable upon conversion of preferred stock held by Fidelity Select Portfolios: Biotechnology Portfolio, (vi) 366,846 shares of common stock issuable upon conversion of preferred stock held by Fidelity Advisor Series VII: Fidelity Advisor Biotechnology Fund, (vii) 836,860 shares of common stock issuable upon conversion of preferred stock held by Fidelity Advisor Series VII: Fidelity Advisor Health Care Fund, (viii) 1,415,125 shares of common stock issuable upon conversion of preferred stock held by Fidelity Select Portfolios: Health Care Portfolio, (ix) 166,187 shares of common stock issuable upon conversion of preferred stock held by Variable Insurance Products Fund IV: Health Care Portfolio, and (x) 516,591 shares of common stock issuable upon conversion of preferred stock held by Fidelity Central Investment Portfolios LLC: Fidelity Health Care Central Fund. These accounts are managed by direct or indirect subsidiaries of FMR LLC. Abigail P. Johnson is a Director, the Chairman, the Chief Executive Officer and the President of FMR LLC. Members of the Johnson family, including Abigail P. Johnson, are the predominant owners, directly or through trusts, of Series B voting common shares of FMR LLC, representing 49% of the voting power of FMR LLC. The Johnson family group and all other Series B shareholders have entered into a shareholders' voting agreement under which all Series B voting common shares will be voted in accordance with the majority vote of Series B voting common shares. Accordingly, through their ownership of voting common shares and the execution of the shareholders' voting agreement, members of the Johnson family may be deemed, under the Investment Company Act of 1940, to form a controlling group with respect to FMR LLC. Neither FMR LLC nor Abigail P. Johnson has the sole power to vote or direct the voting of the shares owned directly by the various investment companies registered under the Investment Company Act of 1940, or the Fidelity Funds, advised by Fidelity Management & Research Company, a wholly owned subsidiary of FMR LLC, which power resides with the Fidelity Funds' Boards of Trustees. Fidelity Management & Research Company carries out the voting of the shares under written guidelines established by the Fidelity Funds' Boards of Trustees. The business address for each person and entity named in this footnote is 245 Summer Street, Boston, Massachusetts 02110.

(3) Represents shares of common stock issuable upon conversion of preferred stock held by Novartis Pharma AG. Novartis Pharma AG disclaims beneficial ownership of these securities except to the extent of its pecuniary interest therein. Novartis Pharma AG is a Swiss corporation and an indirect wholly-owned subsidiary of Novartis AG. The address of Novartis Pharma AG is Lichtstrasse 35 4056 Basel Switzerland.

(4) Represents shares of common stock held by the Eric Ostertag Living Trust dated March 30, 2016, or the Eric Ostertag Trust. Dr. Ostertag is the trustee of the Eric Ostertag Trust.

(5) Represents shares of common stock held by Titan LLC. Titan LLC is owned by the Ostertag Descendants' Trust and Dr. Ostertag's minor daughter is the sole beneficiary of the Ostertag Descendants' Trust. Therefore, Dr. Ostertag may be deemed to share voting and investment power over our shares held by Titan LLC. Dr. Ostertag disclaims beneficial ownership of these securities except to the extent of his pecuniary interest therein.

(6) Consists of (i) 1,189,182 shares of common stock issuable upon conversion of preferred stock held by PWCM Master Fund Ltd., (ii) 220,107 shares of common stock issuable upon conversion of preferred stock held by Pentwater Credit Master Fund Ltd., (iii) 244,504 shares of common stock issuable upon conversion of preferred stock held by Pentwater Equity Opportunities Master Fund Ltd., (iv) 611,350 shares of common stock issuable upon conversion of preferred stock held by Pentwater Merger Arbitrage Master Fund Ltd., (v) 36,236 shares of common stock issuable upon conversion of preferred stock held by Pentwater Unconstrained Master Fund Ltd. and (vi) 166,708 shares held of record by Pentwater Capital Management LP as investment advisor to LMA SPC for and on behalf of MAP98 Segregated Portfolio. Matthew C. Halbower, CIO and CEO of Pentwater Capital Management LP, exercises voting and investment control with respect to the shares held by the entities named in this footnote. The business address for each person and entity named in this footnote is 1001 10th Ave. South, Suite 216, Naples, Florida 34102.

(7) Represents shares of common stock issuable upon conversion of preferred stock held by Longitude Venture Partners III, L.P., or LVP III. Longitude Capital Partners III, LLC, or LCP III, is the general partner of LVP III and may be deemed to have voting, investment and dispositive power over our securities held by LVP III. Dr. Hirsch, a member of our board of directors, is a member of LCP III and may be deemed to share voting, investment and dispositive power with respect to our securities held by LVP III. Patrick G. Enright and Juliet Tammenoms Bakker are the managing members of LCP III, or collectively, the Managers, and may each be deemed to share voting, investment and dispositive power over our securities held by LVP III. Each of LCP III, Dr. Hirsch and the Managers disclaims beneficial ownership of these securities, except to the extent of their respective pecuniary interests therein. The address of LVP III is 2740 Sand Hill Road, Menlo Park, California 94025.

(8) Consists of (i) the shares described in footnotes (4) and (5) above, (ii) 961,445 shares of common stock held by Ostertag Family Trust dated March 30, 2016, of which Dr. Ostertag is a trustee, (iii) 364,056 share of common stock held by Dr. Ostertag, (iv) 221,782 shares of common stock underlying options held by Dr. Ostertag and exercisable within 60 days of June 24, 2020, (v) 373,349 shares of common stock held by Twin Prime Investments, which is an entity wholly owned by Dr. Ostertag, (vi) 255,845 shares of common stock

issuable upon conversion of preferred stock held by Twin Prime Investments, and (vii) 350,696 shares of common stock issuable upon conversion of preferred stock held by Transposagen. Dr. Ostertag is a member of the board of directors and majority stockholder of Transposagen. The address of Transposagen is 535 W. Second St., Suite 10, Lexington, Kentucky 40506.

(9) Represents 212,008 shares of common stock underlying options exercisable within 60 days of June 24, 2020.

(10) Represents 26,730 shares of common stock underlying options exercisable within 60 days of June 24, 2020.

(11) Represents 195,969 shares of common stock underlying options exercisable within 60 days of June 24, 2020. Does not include 75,000 shares of common stock subject to an option approved for grant to Mr. Gergen after June 24, 2020, which grant is contingent and effective upon the effectiveness of the registration statement of which this prospectus forms a part.

(12) Represents shares of common stock issuable upon conversion of preferred stock held by LVP III as described in footnote (7) above. Dr. Hirsch disclaims beneficial ownership of these securities, except to the extent of his pecuniary interest therein. Does not include 20,000 shares of common stock subject to an option approved for grant to Dr. Hirsch after June 24, 2020, which grant is contingent and effective upon the effectiveness of the registration statement of which this prospectus forms a part. The business address for Dr. Hirsch is 2740 Sand Hill Road, Menlo Park, California 94025.

(13) Does not include 20,000 shares of common stock subject to an option approved for grant to Mr. Murphy after June 24, 2020, which grant is contingent and effective upon the effectiveness of the registration statement of which this prospectus forms a part.

(14) Represents 32,744 shares of common stock underlying options exercisable within 60 days of June 24, 2020. Does not include 20,000 shares of common stock subject to an option approved for grant to Mr. Schmid after June 24, 2020, which grant is contingent and effective upon the effectiveness of the registration statement of which this prospectus forms a part.

(15) Represents 32,967 shares of common stock underlying options exercisable within 60 days of June 24, 2020. Does not include 20,000 shares of common stock subject to an option approved for grant to Dr. Mackey after June 24, 2020, which grant is contingent and effective upon the effectiveness of the registration statement of which this prospectus forms a part.

(16) Represents 32,967 shares of common stock underlying options exercisable within 60 days of June 24, 2020. Does not include 20,000 shares of common stock subject to an option approved for grant to Ms. Lloyd after June 24, 2020, which grant is contingent and effective upon the effectiveness of the registration statement of which this prospectus forms a part.

(17) Consists of (i) the shares described in footnote (1) and footnotes (8) through (16) above, and (ii) shares held or issuable upon exercise of stock options by Ms. Mylet as of June 24, 2020 who is not named in the table above.

DESCRIPTION OF CAPITAL STOCK

A description of our capital stock and the material terms and provisions of our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect upon the completion of this offering and affecting the rights of holders of our capital stock is set forth below. The forms of our amended and restated certificate of incorporation and our amended and restated bylaws to be adopted in connection with this offering are filed as exhibits to the registration statement relating to this prospectus.

Upon the completion of this offering, our amended and restated certificate of incorporation will authorize shares of undesignated preferred stock, the rights, preferences and privileges of which may be designated from time to time by our board of directors.

Upon the completion of this offering, our authorized capital stock will consist of 260,000,000 shares, all with a par value of $0.0001 per share, of which:

- 250,000,000 shares are designated common stock; and
- 10,000,000 shares are designated preferred stock.

As of March 31, 2020, after giving effect to the (1) issuance of an aggregate of 10,018,300 shares of our Series D preferred stock in June 2020, and (2) automatic conversion of all outstanding shares of preferred stock into an aggregate of 34,445,108 shares of our common stock, there were outstanding:

- 47,815,886 shares of our common stock held of record by 164 stockholders;
- 121,122 shares of our common stock issuable upon exercise of outstanding warrants; and
- 3,852,972 shares of our common stock issuable upon exercise of outstanding stock options.

Common Stock

Dividend Rights

Subject to preferences that may apply to shares of preferred stock outstanding at the time, the holders of outstanding shares of our common stock are entitled to receive dividends out of funds legally available if our board of directors, in its discretion, determines to issue dividends and only then at the times and in the amounts that our board of directors may determine. See the section titled “Dividend Policy” for more information.

Voting Rights

The holders of our common stock are entitled to one vote per share. Stockholders do not have the ability to cumulate votes for the election of directors. Our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect upon the completion of this offering will provide for a classified board of directors consisting of three classes of approximately equal size, each serving staggered three-year terms. Only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms.

No Preemptive or Similar Rights

Our common stock is not entitled to preemptive rights and is not subject to conversion, redemption or sinking fund provisions.

Right to Receive Liquidation Distributions

Upon our dissolution, liquidation or winding-up, the assets legally available for distribution to our stockholders are distributable ratably among the holders of our common stock, subject to prior satisfaction of all outstanding debt and liabilities and the preferential rights and payment of liquidation preferences, if any, on any outstanding shares of preferred stock.

Preferred Stock

Upon the completion of this offering, no shares of preferred stock will be outstanding, but we will be authorized, subject to limitations prescribed by Delaware law, to issue preferred stock in one or more series, to establish from time to time the number of shares to be included in each series and to fix the designation, powers, preferences and rights of the shares of each series and any associated qualifications, limitations or restrictions. Our board of directors also can increase or decrease the number of shares of any series, but not below the number of shares of that series then outstanding, without any further vote or action by our stockholders. Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of the common stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in control of our company and may adversely affect the market price of our common stock and the voting and other rights of the holders of common stock. We have no current plan to issue any shares of preferred stock.

Warrants

As of March 31, 2020, there were outstanding warrants to purchase the following shares of our capital stock:

Description	# of Shares of Common Stock After this Offering	Weighted-Average Exercise Price After this Offering
Series A-1 preferred stock	93,518	$ 4.28
Series B preferred stock	27,604	$ 7.25

On July 25, 2017, we issued two warrants to purchase an aggregate of 116,618 shares of Series A-1 preferred stock to Oxford Finance LLC at an exercise price of $3.43 per share. The warrants were issued in connection with our entry into a loan and security agreement with the warrant holder. The warrants will become exercisable for an aggregate of 94,518 shares of our common stock at an exercise price equal to $4.28 per share upon completion of this offering. The warrants are exercisable until their expiration on July 25, 2027 unless terminated earlier as a result of certain reorganizations or changes in control as set forth in the warrants.

On August 13, 2018, we issued a warrant to purchase 17,212 shares of Series B preferred stock to Oxford Finance LLC at an exercise price of $5.81 per share. The warrant was issued in connection with our entry into an amendment to the loan and security agreement with the warrant holder. The warrant will become exercisable for an aggregate of 13,802 shares of our common stock at an exercise price equal to $7.25 per share upon completion of this offering. The warrant is exercisable until its expiration on August 13, 2028 unless terminated earlier as a result of certain reorganizations or changes in control as set forth in the warrant.

On February 11, 2019, we issued a warrant to purchase 17,212 shares of Series B preferred stock to Oxford Finance LLC at an exercise price of $5.81 per share. The warrant was issued in connection with our entry into an amendment to the loan and security agreement with the warrant holder. The warrant will become exercisable for an aggregate of 13,802 shares of our common stock at an exercise price equal to $7.25 per share upon completion of this offering. The warrant is exercisable until its expiration on February 11, 2029 unless terminated earlier as a result of certain reorganizations or changes in control as set forth in the warrant.

Options

As of March 31, 2020, there were options to purchase 3,853,223 shares of our common stock outstanding, which were granted under our existing equity incentive plan.

Registration Rights

Following the completion of this offering, the holders of 34,445,108 shares of our common stock issued upon the conversion of our preferred stock will be entitled to contractual rights to require us to register those shares under the Securities Act. These registration rights are provided under the terms of our amended and restated investors' rights agreement between us and the holders of these shares, which was entered into in June 2020.

We will pay all expenses relating to any demand, piggyback or Form S-3 registration described below, other than underwriting discounts and commissions. The registration rights terminate upon the earliest to occur of a liquidation event or the fifth anniversary of the completion of this offering.

Demand Registration Rights

The holders of the registrable securities will be entitled to certain demand registration rights. At any time beginning six months following the completion of this offering, the holders of 50% or more of the registrable securities then outstanding may make a written request that we register some or all of their registrable securities, subject to certain specified conditions and exceptions. We are required to use commercially reasonable efforts to affect the registration. A request for registration must cover securities with an aggregate offering price of at least $10,000,000. We are not obligated to effect more than two of these registrations.

Piggyback Registration Rights

In connection with this offering, holders of our registrable securities were entitled to, and the necessary percentage of holders waived, their rights to notice of this offering and to include their registrable securities in this offering. If we propose to register any additional securities under the Securities Act either for our own account or for the account of other stockholders in another offering, the holders of shares having registration rights will, subject to certain exceptions, be entitled to include their shares in our registration statement, provided that the underwriters of any such offering have the right to limit the number of shares included in the registration. These registration rights are subject to specified other conditions and limitations as set forth in our amended and restated investors' rights agreement.

Form S-3 Registration Rights

At any time after we are qualified to file registration statements on Form S-3, and subject to limitations and conditions specified in the amended and restated investors' rights agreement, the holders of 25% or more of the registrable securities then outstanding may make a written request that we prepare and file a registration statement on Form S-3 under the Securities Act registering the resale of their shares, so long as the aggregate price to the public is at least $2,000,000. We are not obligated to effect more than two of these Form S-3 registrations in any 12-month period.

Anti-Takeover Provisions

Delaware Law

Upon the completion of this offering, we will be governed by the provisions of Section 203 of the Delaware General Corporation Law regulating corporate takeovers. This section prevents some Delaware

corporations from engaging, under some circumstances, in a business combination, which includes a merger or sale of at least 10% of the corporation's assets with any interested stockholder, meaning a stockholder who, together with affiliates and associates, owns or, within three years prior to the determination of interested stockholder status, did own 15% or more of the corporation's outstanding voting stock, unless:

- the transaction is approved by the board of directors prior to the time that the interested stockholder became an interested stockholder;
- upon closing of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction began, excluding for purposes of determining the voting stock outstanding those shares owned (1) by persons who are directors and also officers and (2) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- subsequent to such time that the stockholder became an interested stockholder the business combination is approved by the board of directors and authorized at an annual or special meeting of stockholders by at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

A Delaware corporation may "opt out" of these provisions with an express provision in its original certificate of incorporation or an express provision in its certificate of incorporation or amended and restated bylaws resulting from a stockholders' amendment approved by at least a majority of the outstanding voting shares. We have not opted out of these provisions. As a result, mergers or other takeover or change in control attempts of us may be discouraged or prevented.

Certificate of Incorporation and Bylaw Provisions

Upon the completion of this offering, our amended and restated certificate of incorporation and our amended and restated bylaws will include a number of provisions that may have the effect of deterring hostile takeovers or delaying or preventing changes in control of our management team, including the following:

- *Board of Directors Vacancies*. Our amended and restated certificate of incorporation and amended and restated bylaws will authorize our board of directors to fill vacant directorships, including newly-created seats. In addition, the number of directors constituting our board of directors will be set only by resolution adopted by a majority vote of our entire board of directors. These provisions may prevent a stockholder from increasing the size of our board of directors and gaining control of our board of directors by filling the resulting vacancies with its own nominees.
- *Classified Board.* Our amended and restated certificate of incorporation and amended and restated bylaws will provide that our board of directors will be classified into three classes of directors, each of which will hold office for a three-year term. In addition, directors may only be removed from the board of directors for cause and only by the approval of 66-2/3% of our then-outstanding shares of our common stock. A third party may be discouraged from making a tender offer or otherwise attempting to obtain control of us as it is more difficult and time consuming for stockholders to replace a majority of the directors on a classified board of directors.
- *Stockholder Action; Special Meeting of Stockholders*. Our amended and restated certificate of incorporation will provide that stockholders will not be able to take action by written consent and will only be able to take action at annual or special meetings of our stockholders. Stockholders will not be permitted to cumulate their votes for the election of directors. Our amended and restated bylaws will further provide that special meetings of our stockholders may be called only by a majority vote of our entire board of directors, the chairman of our board of directors or our chief executive officer.

- *Advance Notice Requirements for Stockholder Proposals and Director Nominations*. Our amended and restated bylaws will provide advance notice procedures for stockholders seeking to bring business before our annual meeting of stockholders, or to nominate candidates for election as directors at any meeting of stockholders. Our amended and restated bylaws will also specify certain requirements regarding the form and content of a stockholder's notice. These provisions may make it more difficult for our stockholders to bring matters before our annual meeting of stockholders or to make nominations for directors at our meetings of stockholders.

- *Issuance of Undesignated Preferred Stock*. Our board of directors will have the authority, without further action by the holders of common stock, to issue up to 10,000,000 shares of undesignated preferred stock with rights and preferences, including voting rights, designated from time to time by our board of directors. The existence of authorized but unissued shares of preferred stock will enable our board of directors to render more difficult or discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise.

Choice of Forum

Upon the completion of this offering, our amended and restated certificate of incorporation will provide that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law: (1) any derivative action or proceeding brought on our behalf; (2) any action or proceeding asserting a claim of breach of a fiduciary duty owed by any of our current or former directors, officers or other employees to us or our stockholders; (3) any action or proceeding asserting a claim against us or any of our current or former directors, officers or other employees, arising out of or pursuant to any provision of the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated bylaws; (4) any action or proceeding to interpret, apply, enforce or determine the validity of our amended and restated certificate of incorporation or our amended and restated bylaws; (5) any action or proceeding as to which the Delaware General Corporation Law confers jurisdiction to the Court of Chancery of the State of Delaware; and (6) any action asserting a claim against us or any of our directors, officers or other employees, governed by the internal affairs doctrine; provided, that, this provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act, or any other claim for which the federal courts have exclusive jurisdiction. Our amended and restated certificate of incorporation will further provide that the federal district courts of the United States of America will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act, unless we consent in writing to the selection of an alternative forum. These choice of forum provisions may limit a stockholder's ability to bring certain claims in a judicial forum that it finds favorable for disputes with us or any of our directors, officers, other employees or stockholders, which may discourage lawsuits with respect to such claims, although our stockholders will not be deemed to have waived our compliance with federal securities laws and the rules and regulations thereunder.

Transfer Agent and Registrar

Upon the completion of this offering, the transfer agent and registrar for our common stock will be Computershare Trust Company, N.A. The transfer agent's address is 250 Royall Street, Canton, Massachusetts 02021.

Listing

We have applied to list our common stock on the Nasdaq Global Select Market under the symbol "PSTX."

SHARES ELIGIBLE FOR FUTURE SALE

Future sales of substantial amounts of our common stock, including shares issued on the exercise of outstanding options, in the public market after this offering, or the possibility of these sales or issuances occurring, could adversely affect the prevailing market price for our common stock or impair our ability to raise equity capital.

Based on our shares of common stock outstanding as of March 31, 2020, upon the closing of this offering, and assuming (1) the issuance of an aggregate of 10,018,300 shares of our Series D preferred stock in June 2020, (2) the automatic conversion of all outstanding shares of our preferred stock into 34,445,108 shares of our common stock in connection with the closing of this offering, (3) no exercise of the underwriters' option to purchase 1,500,000 additional shares of common stock from us and (4) no exercise of outstanding options or warrants, an aggregate of 47,815,886 shares of common stock will be outstanding. Of these shares, all of the common stock sold in this offering by us, plus any shares sold by us on exercise of the underwriters' option to purchase additional common stock, will be freely tradable in the public market without restriction or further registration under the Securities Act, unless these shares are held by "affiliates," as that term is defined in Rule 144 under the Securities Act.

The remaining shares of common stock will be, and shares of common stock subject to stock options will be on issuance, "restricted securities," as that term is defined in Rule 144 under the Securities Act. These restricted securities are eligible for public sale only if they are registered under the Securities Act or if they qualify for an exemption from registration under Rules 144 or 701 under the Securities Act, which are summarized below. Restricted securities may also be sold outside of the United States to non-U.S. persons in accordance with Rule 904 of Regulation S.

Subject to the lock-up agreements described below and the provisions of Rule 144 or Regulation S under the Securities Act, as well as our insider trading policy, these restricted securities will be available for sale in the public market after the date of this prospectus.

Rule 144

In general, under Rule 144 as currently in effect, a person who has beneficially owned shares of our restricted common stock for at least six months would be entitled to sell their securities provided that such person is not deemed to have been one of our affiliates at the time of, or at any time during the 90 days preceding, a sale, and we are subject to the periodic reporting requirements of the Exchange Act, for at least 90 days before the sale. In addition, under Rule 144, any person who is not an affiliate of ours and has held their shares for at least one year, including the holding period of any prior owner other than one of our affiliates, would be entitled to sell an unlimited number of shares immediately upon the completion of this offering without regard to whether current public information about us is available. Persons who have beneficially owned shares of our restricted common stock for at least six months but who are our affiliates at the time of, or any time during the 90 days preceding, a sale, would be subject to additional restrictions, by which such person would be entitled to sell within any three-month period only a number of securities that does not exceed the greater of either of the following:

- 1% of the number of shares of common stock then outstanding, which will equal approximately 578,158 shares immediately outstanding after this offering assuming; or
- the average weekly trading volume of our common shares during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale;

provided, in each case, that we have been subject to the Exchange Act periodic reporting requirements for at least 90 days before the sale. Such sales both by affiliates and by non-affiliates must also comply with the manner of sale, current public information and notice provisions of Rule 144.

Rule 701

Any of our service providers who purchased shares under a written compensatory plan or contract prior to this offering may be entitled to rely on the resale provisions of Rule 701. Rule 701, as currently in effect, permits resales of shares, including by affiliates, in reliance upon Rule 144 but without compliance with certain restrictions, including the holding period requirement, of Rule 144. Rule 701 further provides that non-affiliates may sell such shares in reliance on Rule 144 without having to comply with the public information, volume limitation or notice provisions of Rule 144. All holders of Rule 701 shares are required to wait until 90 days after the date of this prospectus before selling such shares if such resale is pursuant to Rule 701. All Rule 701 shares are, however, subject to lock-up agreements and will only become eligible for sale upon the expiration of these lock-up agreements.

Lock-Up Agreements

In connection with this offering, we and all directors and officers and the holders of substantially all of our outstanding securities have agreed with BofA Securities, Inc. and Piper Sandler & Co., subject to certain exceptions, not to offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of, directly or indirectly, shares of our common stock or any securities convertible into or exchangeable for shares of our common stock or enter into any swap or other arrangement that transfers to another any of the economic consequences of ownership of our common stock during the period from the date of this prospectus continuing through the date 180 days after the date of this prospectus, except with the prior written consent of BofA Securities, Inc. and Piper Sandler & Co. These agreements are subject to certain exceptions, as set forth in the section titled “Underwriting.”

Rule 10b5-1 Plans

Certain of our employees, including our executive officers, and directors may enter into written trading plans that are intended to comply with Rule 10b5-1 under the Exchange Act. Sales under these trading plans would not be permitted until the expiration of the lock-up agreements relating to our initial public offering described above.

Registration Rights

Upon completion of this offering, the holders of 34,445,108 shares of our common stock will be entitled to rights with respect to the registration of the sale of these shares under the Securities Act. See the section titled “Description of Capital Stock—Registration Rights.” All of these shares are subject to lock-up restrictions under agreements with us and/or the underwriters. Following the expiration of the lock-up period, registration of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act immediately upon the effectiveness of the registration.

Equity Plans

We intend to file a registration statement on Form S-8 under the Securities Act covering all of the shares of our common stock subject to options outstanding or reserved for issuance under our equity plans. We expect to file this registration statement as soon as practicable after the completion of this offering. This registration statement will become effective immediately upon filing, and shares covered by this registration statement will thereupon be eligible for sale in the public markets, subject to vesting restrictions, the lock-up agreements described above and Rule 144 limitations applicable to affiliates. For a more complete discussion of our stock plans, see the section titled “Executive and Director Compensation—Equity Plans.”

MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS TO NON-U.S. HOLDERS OF COMMON STOCK

The following is a discussion of material U.S. federal income tax considerations applicable to non-U.S. holders (as defined below) with respect to their purchase, ownership and disposition of shares of our common stock issued pursuant to this offering, but does not purport to be a complete analysis of all potential tax effects. All prospective non-U.S. holders of our common stock should consult their own tax advisors with respect to the U.S. federal income tax consequences of the purchase, ownership and disposition of our common stock, as well as any consequences arising under the laws of any other taxing jurisdiction, including any state, local and non-U.S. tax consequences and any U.S. federal non-income tax consequences (such as estate and gift tax consequences). In general, a non-U.S. holder means a beneficial owner of our common stock (other than a partnership or an entity or arrangement treated as a partnership for U.S. federal income tax purposes) that is not, for U.S. federal income tax purposes:

- an individual who is a citizen or resident of the United States;
- a corporation, or an entity treated as a corporation for U.S. federal income tax purposes, created or organized in the United States or under the laws of the United States, any state thereof or the District of Columbia;
- an estate, the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust if (1) a U.S. court can exercise primary supervision over the trust's administration and one or more "United States persons" have the authority to control all of the trust's substantial decisions or (2) the trust has a valid election in effect under applicable U.S. Treasury Regulations to be treated as a "United States person."

This discussion is based on current provisions of the Code, existing U.S. Treasury Regulations promulgated thereunder, published administrative rulings and judicial decisions, all as in effect as of the date of this prospectus. These laws are subject to change and to differing interpretation, possibly with retroactive effect. Any such change or differing interpretation could alter the tax considerations to non-U.S. holders described in this prospectus.

This discussion is limited to non-U.S. holders that hold shares of our common stock as a capital asset within the meaning of Section 1221 of the Code (generally, property held for investment). This discussion does not address all aspects of U.S. federal income taxation that may be relevant to a particular non-U.S. holder in light of that non-U.S. holder's individual circumstances, nor does it address any aspects of U.S. estate or gift tax, or any state, local or non-U.S. taxes. This discussion also does not consider any specific facts or circumstances that may apply to a non-U.S. holder and does not address the special tax rules applicable to particular non-U.S. holders, such as holders that own, or are deemed to own, during the applicable testing period, more than 5% of our outstanding capital stock (except to the extent specifically set forth below), corporations that accumulate earnings to avoid U.S. federal income tax, tax-exempt organizations, banks, financial institutions, mutual funds, insurance companies, brokers, dealers or traders in securities, commodities or currencies, tax-qualified retirement plans, government organizations, holders subject to the alternative minimum tax or Medicare contribution tax on net investment income, holders who have a functional currency other than the U.S. dollar for U.S. federal income tax purposes, holders who hold or receive our common stock pursuant to the exercise of employee stock options or otherwise as compensation, holders holding our common stock as part of a hedge, straddle or other risk reduction strategy, synthetic security, conversion transaction or other integrated investment, holders deemed to sell our common stock under the constructive sale provisions of the Code, controlled foreign corporations, passive foreign investment companies, U.S. expatriates and certain former citizens or long-term residents of the United States and "qualified foreign pension funds" as defined in Section 897(1)(2) of the Code and entities all of the interests of which are held by qualified foreign pension funds.

In addition, this discussion does not address the tax treatment of partnerships (or entities or arrangements that are treated as pass-through or disregarded entities for U.S. federal income tax purposes) or persons that hold their common stock through such partnerships or such entities or arrangements. If a partnership, including any entity or arrangement treated as a partnership for U.S. federal income tax purposes, holds shares of our common stock, the U.S. federal income tax treatment of a partner in such partnership will generally depend upon the status of the partner, the activities of the partnership and certain determinations made at the partner level. Such partners and partnerships should consult their own tax advisors regarding the tax consequences of the purchase, ownership and disposition of our common stock.

There can be no assurance that the Internal Revenue Service, or the IRS, will not challenge one or more of the tax considerations described herein, and we have not obtained, nor do we intend to obtain, a ruling with respect to the U.S. federal income tax consequences with respect to the matters discussed below.

THIS SUMMARY IS NOT INTENDED TO BE TAX ADVICE. PROSPECTIVE INVESTORS SHOULD CONSULT THEIR TAX ADVISORS REGARDING THE PARTICULAR U.S. FEDERAL INCOME TAX CONSEQUENCES TO THEM OF ACQUIRING, OWNING, AND DISPOSING OF OUR COMMON STOCK, AS WELL AS ANY TAX CONSEQUENCES ARISING UNDER ANY STATE, LOCAL, OR FOREIGN TAX LAWS AND ANY OTHER U.S. FEDERAL TAX LAWS.

Distributions on Our Common Stock

Distributions, if any, on our common stock generally will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. If a distribution exceeds our current and accumulated earnings and profits, the excess will be treated as a tax-free return of the non-U.S. holder's investment, up to such holder's adjusted tax basis in the common stock. Any remaining excess will be treated as capital gain from the sale or exchange of such common stock, subject to the tax treatment described below in the subsection titled "—Sale, Exchange or Other Disposition of Our Common Stock."

Subject to the discussions below regarding effectively connected income, backup withholding and foreign accounts, dividends paid to a non-U.S. holder will generally be subject to withholding of U.S. federal income tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty. A non-U.S. holder of our common stock who claims the benefit of an applicable income tax treaty generally will be required to provide a properly executed IRS Form W-8BEN or W-8BEN-E (or successor form) and satisfy relevant certification and other requirements. We do not intend to adjust our withholding unless such certificates are provided to us or our paying agent before the payment of dividends and are updated as may be required by the IRS. A non-U.S. holder that is eligible for a reduced rate of U.S. withholding tax under an income tax treaty, but that does not timely furnish required documentation, may obtain a refund or credit of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS. Non-U.S. holders are urged to consult their tax advisors regarding their entitlement to benefits under a relevant income tax treaty.

Dividends that are treated as effectively connected with a trade or business conducted by a non-U.S. holder within the United States and, if an applicable income tax treaty so provides, that are attributable to a permanent establishment or a fixed base maintained by the non-U.S. holder within the United States are generally exempt from the 30% withholding tax if the non-U.S. holder satisfies applicable certification and disclosure requirements. To claim the exemption, the non-U.S. holder must furnish to us or the applicable withholding agent a valid IRS Form W-8ECI (or applicable successor form), certifying that the dividends are effectively connected with the non-U.S. holder's conduct of a trade or business within the United States. However, such U.S. effectively connected income is taxed, on a net income basis, at the same U.S. federal income tax rates applicable to "United States persons" (as defined in the Code), unless a specific treaty exemption applies. Any U.S. effectively connected income received by a non-U.S. holder that is a foreign corporation may also, under certain circumstances, be subject to an additional "branch profits tax" at a 30% rate or such lower rate as may be specified by an applicable income tax treaty.

Sale, Exchange or Other Disposition of Our Common Stock

Subject to the discussions below regarding backup withholding and foreign accounts, in general, a non-U.S. holder will not be subject to any U.S. federal income tax on any gain realized upon such holder's sale, exchange or other disposition of shares of our common stock unless:

- the gain is effectively connected with a U.S. trade or business of the non-U.S. holder and, if an applicable income tax treaty so provides, is attributable to a permanent establishment or a fixed base maintained in the United States by such non-U.S. holder, in which case the non-U.S. holder generally will be taxed, on a net income basis, at the U.S. federal income tax rates applicable to "United States persons" (as defined in the Code) and, if the non-U.S. holder is a foreign corporation, the branch profits tax described above in the subsection titled "—Distributions on Our Common Stock" may also apply;

- the non-U.S. holder is a nonresident alien individual who is present in the United States for 183 days or more in the taxable year of the disposition and certain other conditions are met, in which case the non-U.S. holder will be subject to a 30% tax (or such lower rate as may be specified by an applicable income tax treaty) on the net gain derived from the disposition, which may be offset by certain U.S. source capital losses of the non-U.S. holder, if any (even though the individual is not considered a resident of the United States), provided the non-U.S. holder has timely filed U.S. federal income tax returns with respect to such losses; or

- our common stock constitutes a United States real property interest because we are, or have been, at any time during the five-year period preceding such disposition (or the non-U.S. holder's holding period, if shorter) a "United States real property holding corporation" (as defined in the Code). Even if we are or become a United States real property holding corporation, provided that our common stock is "regularly traded" (as defined in the applicable Treasury Regulations) on an established securities market, our common stock will be treated as a United States real property interest only with respect to a non-U.S. holder that holds more than 5% of our outstanding common stock, directly or indirectly, actually or constructively, during the shorter of the five-year period ending on the date of the disposition or the period that the non-U.S. holder held our common stock. In such case, such non-U.S. holder generally will be taxed on its net gain derived from the disposition at the United States federal income tax rates applicable to "United States persons" (as defined in the Code). Generally, a corporation is a U.S. real property holding corporation only if the fair market value of its U.S. real property interests equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests plus its other assets used or held for use in a trade or business. Although there can be no assurance, we do not believe that we are, or have been, a United States real property holding corporation, or that we are likely to become one in the future. No assurance can be provided that our common stock will be regularly traded on an established securities market for purposes of the rules described above.

Backup Withholding and Information Reporting

We must report annually to the IRS and to each non-U.S. holder distributions on our common stock paid to such holder and the tax withheld, if any, with respect to such distributions. Non-U.S. holders will have to comply with specific certification procedures to establish that the holder is not a "United States person" (as defined in the Code) in order to avoid backup withholding at the applicable rate with respect to dividends on our common stock. U.S. backup withholding generally will not apply to a non-U.S. holder who provides a properly executed IRS Form W-8BEN, W-8BEN-E, or IRS Form W-8ECI or otherwise establishes an exemption; provided the applicable withholding agent does not have actual knowledge, or reason to know, that the non-U.S. holder is a "United States person" (as defined in the Code).

Information reporting and backup withholding will generally apply to the proceeds of a disposition of our common stock by a non-U.S. holder effected by or through the U.S. office of any broker, U.S. or foreign, unless the holder certifies its status as a non-U.S. holder and satisfies certain other requirements, or otherwise establishes an exemption. Generally, information reporting and backup withholding will not apply to a payment of disposition proceeds to a non-U.S. holder where the transaction is effected outside the United States through a non-U.S. office of a broker. However, for information reporting purposes, dispositions effected through a non-U.S. office of a broker with substantial U.S. ownership or operations generally will be treated in a manner similar to dispositions effected through a U.S. office of a broker. Non-U.S. holders should consult their own tax advisors regarding the application of the information reporting and backup withholding rules to them.

Copies of information returns may be made available to the tax authorities of the country in which the non-U.S. holder resides or is established under the provisions of a specific income tax treaty or agreement.

Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules from a payment to a non-U.S. holder may be allowed as a credit against the non-U.S. holder's U.S. federal income tax liability, if any, and may entitle such holder to a refund, provided that the required information is timely furnished to the IRS.

Foreign Accounts

Sections 1471 to 1474 of the Code generally impose a U.S. federal withholding tax of 30% on certain payments, including dividends on, and, subject to the discussion of certain proposed Treasury Regulations below, the gross proceeds of a disposition of our common stock paid to a "foreign financial institution" (as specifically defined for this purpose), unless such institution enters into an agreement with the U.S. government to, among other things, withhold on certain payments and to collect and provide to the U.S. tax authorities substantial information regarding certain U.S. account holders of such institution (which may include certain equity and debt holders of such institution, as well as certain account holders that are foreign entities with U.S. owners) or an exemption applies. Foreign financial institutions located in jurisdictions that have an intergovernmental agreement with the United States governing these withholding and reporting requirements may be subject to different rules. This U.S. federal withholding tax of 30% also applies to dividends and, subject to the discussion of certain proposed Treasury Regulations below, the gross proceeds of a disposition of our common stock paid to a non-financial foreign entity, unless such entity provides the withholding agent with either a certification that it does not have any substantial direct or indirect U.S. owners or information regarding substantial direct and indirect U.S. owners of the entity. The withholding tax described above will not apply if the foreign financial institution or non-financial foreign entity otherwise qualifies for an exemption from the rules. Under certain circumstances, a non-U.S. holder might be eligible for refunds or credits of such taxes. Non-U.S. holders are encouraged to consult with their own tax advisors regarding the possible implications of these rules on their investment in our common stock.

The U.S. Treasury released proposed Treasury Regulations which, if finalized in their present form, would eliminate the federal withholding tax of 30% applicable to the gross proceeds of a sale or other disposition of our common stock. In its preamble to such proposed Treasury Regulations, the U.S. Treasury stated that taxpayers may generally rely on the proposed regulations until final regulations are issued.

EACH PROSPECTIVE INVESTOR SHOULD CONSULT ITS OWN TAX ADVISOR REGARDING THE TAX CONSEQUENCES OF PURCHASING, HOLDING AND DISPOSING OF OUR COMMON STOCK, INCLUDING THE CONSEQUENCES OF ANY PROPOSED OR RECENT CHANGES IN APPLICABLE LAW, AS WELL AS TAX CONSEQUENCES ARISING UNDER ANY STATE, LOCAL, NON-U.S. OR U.S. FEDERAL NON-INCOME TAX LAWS OR UNDER ANY APPLICABLE TAX TREATY.

UNDERWRITING

BofA Securities, Inc., Piper Sandler & Co. and William Blair & Company, L.L.C. are acting as representatives of each of the underwriters named below. Subject to the terms and conditions set forth in an underwriting agreement among us and the underwriters, we have agreed to sell to the underwriters, and each of the underwriters has agreed, severally and not jointly, to purchase from us, the number of shares of common stock set forth opposite its name below.

Underwriter	Number of Shares
BofA Securities, Inc.	
Piper Sandler & Co.	
William Blair & Company, L.L.C.	
Total	10,000,000

Subject to the terms and conditions set forth in the underwriting agreement, the underwriters have agreed, severally and not jointly, to purchase all of the shares sold under the underwriting agreement if any of these shares are purchased. If an underwriter defaults, the underwriting agreement provides that the purchase commitments of the nondefaulting underwriters may be increased or the underwriting agreement may be terminated.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act, or to contribute to payments the underwriters may be required to make in respect of those liabilities.

The underwriters are offering the shares, subject to prior sale, when, as and if issued to and accepted by them, subject to approval of legal matters by their counsel, including the validity of the shares, and other conditions contained in the underwriting agreement, such as the receipt by the underwriters of officer's certificates and legal opinions. The underwriters reserve the right to withdraw, cancel or modify offers to the public and to reject orders in whole or in part.

Commissions and Discounts

The representatives have advised us that the underwriters propose initially to offer the shares to the public at the public offering price set forth on the cover page of this prospectus and to dealers at that price less a concession not in excess of $ per share. After the initial offering, the public offering price, concession or any other term of the offering may be changed.

The following table shows the public offering price, underwriting discounts and commissions and proceeds before expenses to us. The information assumes either no exercise or full exercise by the underwriters of their option to purchase additional shares.

	Per Share	Without Option	With Option
Public offering price	$	$	$
Underwriting discounts and commissions	$	$	$
Proceeds, before expenses, to us	$	$	$

The expenses of the offering, not including the underwriting discounts and commissions, are estimated at $3.5 million and are payable by us. We have also agreed to reimburse the underwriters for certain of their expenses incurred in connection with, among others, the review and clearance by the Financial Industry Regulatory Authority, Inc. in an amount of up to $40,000.

Option to Purchase Additional Shares

We have granted an option to the underwriters, exercisable for 30 days after the date of this prospectus, to purchase up to 1,500,000 additional shares at the public offering price, less the underwriting discounts and commissions. If the underwriters exercise this option, each will be obligated, subject to conditions contained in the underwriting agreement, to purchase a number of additional shares proportionate to that underwriter's initial amount reflected in the above table.

Reserved Share Program

At our request, an affiliate of BofA Securities, Inc., a participating underwriter, has reserved for sale, at the initial public offering price, up to 5% of the shares offered by this prospectus for sale to certain of our directors, officers, employees, existing investors, business associates and related persons. If these persons purchase reserved shares it will reduce the number of shares available for sale to the general public. Any reserved shares that are not so purchased will be offered by the underwriters to the general public on the same terms as the other shares offered by this prospectus.

No Sales of Similar Securities

We, our executive officers and directors and our other existing security holders have agreed not to sell or transfer any common stock or securities convertible into, exchangeable for, exercisable for, or repayable with common stock, for 180 days after the date of this prospectus without first obtaining the written consent of BofA Securities, Inc. and Piper Sandler & Co. Specifically, we and these other persons have agreed, with certain limited exceptions, not to directly or indirectly

- offer, pledge, sell or contract to sell any common stock,
- sell any option or contract to purchase any common stock,
- purchase any option or contract to sell any common stock,
- grant any option, right or warrant for the sale of any common stock,
- lend or otherwise dispose of or transfer any common stock,
- request or demand that we file or make a confidential submission of a registration statement related to the common stock, or
- enter into any swap or other agreement that transfers, in whole or in part, the economic consequence of ownership of any common stock whether any such swap or transaction is to be settled by delivery of shares or other securities, in cash or otherwise.

This lock-up provision applies to common stock and to securities convertible into or exchangeable or exercisable for or repayable with common stock. It also applies to common stock owned now or acquired later by the person executing the agreement or for which the person executing the agreement later acquires the power of disposition.

Nasdaq Global Select Market Listing

We have applied to list our common stock on the Nasdaq Global Select Market under the symbol "PSTX."

Determination of Offering Price

Before this offering, there has been no public market for our common stock. The initial public offering price will be determined through negotiations between us and the representatives. In addition to prevailing market conditions, the factors to be considered in determining the initial public offering price are:

- the valuation multiples of publicly traded companies that the representatives believe to be comparable to us,
- our financial information,
- the history of, and the prospects for, our company and the industry in which we compete,
- an assessment of our management, its past and present operations, and the prospects for, and timing of, our future revenues,
- the present state of our development, and
- the above factors in relation to market values and various valuation measures of other companies engaged in activities similar to ours.

An active trading market for the shares may not develop. It is also possible that after the offering the shares will not trade in the public market at or above the initial public offering price.

The underwriters do not expect to sell more than 5% of the shares in the aggregate to accounts over which they exercise discretionary authority.

Price Stabilization, Short Positions and Penalty Bids

Until the distribution of the shares is completed, SEC rules may limit underwriters and selling group members from bidding for and purchasing our common stock. However, the representatives may engage in transactions that stabilize the price of the common stock, such as bids or purchases to peg, fix or maintain that price.

In connection with the offering, the underwriters may purchase and sell our common stock in the open market. These transactions may include short sales, purchases on the open market to cover positions created by short sales and stabilizing transactions. Short sales involve the sale by the underwriters of a greater number of shares than they are required to purchase in the offering. “Covered” short sales are sales made in an amount not greater than the underwriters’ option to purchase additional shares described above. The underwriters may close out any covered short position by either exercising their option to purchase additional shares or purchasing shares in the open market. In determining the source of shares to close out the covered short position, the underwriters will consider, among other things, the price of shares available for purchase in the open market as compared to the price at which they may purchase shares through the option granted to them. “Naked” short sales are sales in excess of such option. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of our common stock in the open market after pricing that could adversely affect investors who purchase in the offering. Stabilizing transactions consist of various bids for or purchases of shares of common stock made by the underwriters in the open market prior to the completion of the offering.

The underwriters may also impose a penalty bid. This occurs when a particular underwriter repays to the underwriters a portion of the underwriting discount received by it because the representatives have repurchased shares sold by or for the account of such underwriter in stabilizing or short covering transactions.

Similar to other purchase transactions, the underwriters' purchases to cover the syndicate short sales may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of our common stock. As a result, the price of our common stock may be higher than the price that might otherwise exist in the open market. The underwriters may conduct these transactions on the Nasdaq Global Select Market, in the over-the-counter market or otherwise.

Neither we nor any of the underwriters make any representation or prediction as to the direction or magnitude of any effect that the transactions described above may have on the price of our common stock. In addition, neither we nor any of the underwriters make any representation that the representatives will engage in these transactions or that these transactions, once commenced, will not be discontinued without notice.

Electronic Distribution

In connection with the offering, certain of the underwriters or securities dealers may distribute prospectuses by electronic means, such as e-mail.

Other Relationships

Some of the underwriters and their affiliates have engaged in, and may in the future engage in, investment banking and other commercial dealings in the ordinary course of business with us or our affiliates. They have received, or may in the future receive, customary fees and commissions for these transactions.

In addition, in the ordinary course of their business activities, the underwriters and their affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers. Such investments and securities activities may involve securities and/or instruments of ours or our affiliates. The underwriters and their affiliates may also make investment recommendations and/or publish or express independent research views in respect of such securities or financial instruments and may hold, or recommend to clients that they acquire, long and/or short positions in such securities and instruments.

European Economic Area and the United Kingdom

In relation to each Member State of the European Economic Area and the United Kingdom (each a "Relevant State"), no Shares have been offered or will be offered pursuant to the initial offering to the public in that Relevant State prior to the publication of a prospectus in relation to the Shares which has been approved by the competent authority in that Relevant State or, where appropriate, approved in another Relevant State and notified to the competent authority in that Relevant State, all in accordance with the Prospectus Regulation, except that offers of Shares may be made to the public in that Relevant State at any time under the following exemptions under the Prospectus Regulation:

(1) to any legal entity which is a qualified investor as defined under the Prospectus Regulation;

(2) to fewer than 150 natural or legal persons (other than qualified investors as defined under the Prospectus Regulation), subject to obtaining the prior consent of representative for any such offer; or

(3) in any other circumstances falling within Article 1(4) of the Prospectus Regulation,

provided that no such offer of Shares shall require the Issuer or any Manager to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation.

Each person in a Relevant State who initially acquires any Shares or to whom any offer is made will be deemed to have represented, acknowledged and agreed to and with the Company and the Managers that it is a qualified investor within the meaning of the Prospectus Regulation.

In the case of any Shares being offered to a financial intermediary as that term is used in Article 5(1) of the Prospectus Regulation, each such financial intermediary will be deemed to have represented, acknowledged and agreed that the Shares acquired by it in the offer have not been acquired on a non-discretionary basis on behalf of, nor have they been acquired with a view to their offer or resale to, persons in circumstances which may give rise to an offer to the public other than their offer or resale in a Relevant State to qualified investors, in circumstances in which the prior consent of the underwriters has been obtained to each such proposed offer or resale.

The Company, the underwriters and their affiliates will rely upon the truth and accuracy of the foregoing representations, acknowledgements and agreements.

For the purposes of this provision, the expression an "offer to the public" in relation to any Shares in any Relevant State means the communication in any form and by any means of sufficient information on the terms of the offer and any Shares to be offered so as to enable an investor to decide to purchase or subscribe for any Shares, and the expression "Prospectus Regulation" means Regulation (EU) 2017/1129.

References to the Prospectus Regulation includes, in relation to the UK, the Prospectus Regulation as it forms part of UK domestic law by virtue of the European Union (Withdrawal) Act 2018.

The above selling restriction is in addition to any other selling restrictions set out below.

Notice to Prospective Investors in the United Kingdom

This document is for distribution only to persons who (1) have professional experience in matters relating to investments and who qualify as investment professionals within the meaning of Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended, the "Financial Promotion Order"), (2) are persons falling within Article 49(2)(a) to (d) ("high net worth companies, unincorporated associations etc.") of the Financial Promotion Order, (3) are outside the United Kingdom, or (4) are persons to whom an invitation or inducement to engage in investment activity (within the meaning of Section 21 of the Financial Services and Markets Act 2000, as amended, or FSMA) in connection with the issue or sale of any securities may otherwise lawfully be communicated or caused to be communicated (all such persons together being referred to as "relevant persons"). This document is directed only at relevant persons and must not be acted on or relied on by persons who are not relevant persons. Any investment or investment activity to which this document relates is available only to relevant persons and will be engaged in only with relevant persons.

Notice to Prospective Investors in Switzerland

The shares may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange, or SIX, or on any other stock exchange or regulated trading facility in Switzerland. This document has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering or marketing material relating to the shares or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering or marketing material relating to the offering, the Company, the shares have been or will be filed with or approved by any Swiss regulatory authority. In particular,

this document will not be filed with, and the offer of shares will not be supervised by, the Swiss Financial Market Supervisory Authority, or FINMA, and the offer of shares has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes, or CISA. The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of shares.

Notice to Prospective Investors in the Dubai International Financial Centre

This prospectus relates to an Exempt Offer in accordance with the Offered Securities Rules of the Dubai Financial Services Authority, or DFSA. This prospectus is intended for distribution only to persons of a type specified in the Offered Securities Rules of the DFSA. It must not be delivered to, or relied on by, any other person. The DFSA has no responsibility for reviewing or verifying any documents in connection with Exempt Offers. The DFSA has not approved this prospectus nor taken steps to verify the information set forth herein and has no responsibility for the prospectus. The shares to which this prospectus relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of the shares offered should conduct their own due diligence on the shares. If you do not understand the contents of this prospectus you should consult an authorized financial advisor.

Notice to Prospective Investors in Australia

No placement document, prospectus, product disclosure statement or other disclosure document has been lodged with the Australian Securities and Investments Commission, or ASIC, in relation to the offering. This prospectus does not constitute a prospectus, product disclosure statement or other disclosure document under the Corporations Act 2001, or the Corporations Act, and does not purport to include the information required for a prospectus, product disclosure statement or other disclosure document under the Corporations Act.

Any offer in Australia of the shares may only be made to persons, or the Exempt Investors, who are “sophisticated investors” (within the meaning of section 708(8) of the Corporations Act), “professional investors” (within the meaning of section 708(11) of the Corporations Act) or otherwise pursuant to one or more exemptions contained in section 708 of the Corporations Act so that it is lawful to offer the shares without disclosure to investors under Chapter 6D of the Corporations Act.

The shares applied for by Exempt Investors in Australia must not be offered for sale in Australia in the period of 12 months after the date of allotment under the offering, except in circumstances where disclosure to investors under Chapter 6D of the Corporations Act would not be required pursuant to an exemption under section 708 of the Corporations Act or otherwise or where the offer is pursuant to a disclosure document which complies with Chapter 6D of the Corporations Act. Any person acquiring shares must observe such Australian on-sale restrictions.

This prospectus contains general information only and does not take account of the investment objectives, financial situation or particular needs of any particular person. It does not contain any securities recommendations or financial product advice. Before making an investment decision, investors need to consider whether the information in this prospectus is appropriate to their needs, objectives and circumstances, and, if necessary, seek expert advice on those matters.

Notice to Prospective Investors in Hong Kong

The shares have not been offered or sold and will not be offered or sold in Hong Kong, by means of any document, other than (1) to “professional investors” as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance; or (2) in other circumstances which do not result in the document being a “prospectus” as defined in the Companies Ordinance (Cap. 32) of Hong Kong or which do not constitute an offer to the public within the meaning of that Ordinance. No advertisement, invitation or document relating to the shares has been or may be issued or has been or may be in the possession of any person

for the purposes of issue, whether in Hong Kong or elsewhere, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the Securities and Futures Ordinance and any rules made under that Ordinance.

Notice to Prospective Investors in Japan

The shares have not been and will not be registered under the Financial Instruments and Exchange Law of Japan (Law No. 25 of 1948, as amended) and, accordingly, will not be offered or sold, directly or indirectly, in Japan, or for the benefit of any Japanese Person or to others for re-offering or resale, directly or indirectly, in Japan or to any Japanese Person, except in compliance with all applicable laws, regulations and ministerial guidelines promulgated by relevant Japanese governmental or regulatory authorities in effect at the relevant time. For the purposes of this paragraph, "Japanese Person" shall mean any person resident in Japan, including any corporation or other entity organized under the laws of Japan.

Notice to Prospective Investors in Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, the shares were not offered or sold or caused to be made the subject of an invitation for subscription or purchase and will not be offered or sold or caused to be made the subject of an invitation for subscription or purchase, and this prospectus or any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares, has not been circulated or distributed, nor will it be circulated or distributed, whether directly or indirectly, to any person in Singapore other than (1) to an institutional investor (as defined in Section 4A of the Securities and Futures Act (Chapter 289) of Singapore, as modified or amended from time to time, or the SFA) pursuant to Section 274 of the SFA, (2) to a relevant person (as defined in Section 275(2) of the SFA) pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA, or (3) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the shares are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

(1) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

(2) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities or securities-based derivatives contracts (each term as defined in Section 2(1) of the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the shares pursuant to an offer made under Section 275 of the SFA except:

(a) to an institutional investor or to a relevant person, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;

(b) where no consideration is or will be given for the transfer;

(c) where the transfer is by operation of law; or

(d) as specified in Section 276(7) of the SFA.

Notice to Prospective Investors in Canada

The shares may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 *Prospectus Exemptions* or subsection 73.3(1) of the *Securities Act* (Ontario), and are permitted clients, as defined in National Instrument 31-103 *Registration Requirements, Exemptions and Ongoing Registrant Obligations*. Any resale of the **s**hares must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 (or, in the case of securities issued or guaranteed by the government of a non-Canadian jurisdiction, section 3A.4) of National Instrument 33-105 *Underwriting Conflicts* (**NI 33-105**), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

LEGAL MATTERS

The validity of the shares of common stock offered by this prospectus will be passed upon for us by Cooley LLP, San Diego, California. Certain legal matters in connection with this offering will be passed upon for the underwriters by Latham & Watkins LLP, San Diego, California.

EXPERTS

The financial statements as of December 31, 2018 and 2019 and for the years then ended included in this prospectus have been so included in reliance on the report (which contains an explanatory paragraph relating to the Company's ability to continue as a going concern as described in Note 1 to the consolidated financial statements) of PricewaterhouseCoopers LLP, an independent registered public accounting firm, given on the authority of said firm as experts in auditing and accounting.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the shares of common stock offered by this prospectus. This prospectus, which constitutes a part of the registration statement, does not contain all of the information set forth in the registration statement or the exhibits and schedules to the registration statement. Please refer to the registration statement and exhibits for further information with respect to the common stock offered by this prospectus. Statements contained in this prospectus regarding the contents of any contract or other document are only summaries. With respect to any contract or document that is filed as an exhibit to the registration statement, you should refer to the exhibit for a copy of the contract or document, and each statement in this prospectus regarding that contract or document is qualified by reference to the exhibit. The SEC maintains a website that contains reports, proxy and information statements and other information regarding issuers, like us, that file documents electronically with the SEC. The address of that website is www.sec.gov. The information on the SEC's website is not part of this prospectus, and any references to this web site or any other web site are inactive textual references only.

Upon completion of this offering, we will become subject to the information and reporting requirements of the Exchange Act, and, in accordance with this law, will be required to file periodic reports, proxy statements and other information with the SEC. These periodic reports, proxy statements and other information will be available on the website of the SEC referred to above. We also maintain a website at www.poseida.com, at which you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. The information contained on, or that can be accessed through, our website is not a part of this prospectus. Investors should not rely on any such information in deciding whether to purchase our common stock. We have included our website address in this prospectus solely as an inactive textual reference.

Poseida Therapeutics, Inc.
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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of Poseida Therapeutics, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Poseida Therapeutics, Inc. and its subsidiaries (the "Company") as of December 31, 2019 and 2018, and the related consolidated statements of operations and comprehensive loss, of changes in convertible preferred stock and stockholders' deficit and of cash flows for the years then ended, including the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America.

Substantial Doubt About the Company's Ability to Continue as a Going Concern

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the consolidated financial statements, the Company has experienced net losses and negative cash outflows from operations since its inception that raise substantial doubt about its ability to continue as a going concern. Management's plans in regard to these matters are also described in Note 1. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits of these consolidated financial statements in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ PricewaterhouseCoopers LLP
San Diego, California
April 17, 2020, except for the effects of the reverse stock split discussed in Note 1 to the consolidated financial statements, as to which the date is July 6, 2020

We have served as the Company's auditor since 2015.

Poseida Therapeutics, Inc.
CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share amounts)

	December 31, 2018	December 31, 2019
ASSETS		
Current assets:		
Cash and cash equivalents	$ 30,395	$ 87,784
Short-term investments	—	37,534
Prepaid expenses and other current assets	2,245	1,861
Total current assets	32,640	127,179
Property and equipment, net	3,416	10,858
Intangible assets, net	1,320	1,320
Goodwill	4,228	4,228
Other long-term assets	1,735	3,411
Deferred offering costs	1,781	—
Total assets	$ 45,120	$ 146,996
LIABILITIES, CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT		
Current liabilities:		
Accounts payable	$ 2,856	$ 4,929
Accrued and other liabilities	6,252	13,926
Contingent consideration - short-term (inclusive of related party amounts of $1,606 and $0, respectively)	3,917	—
Term debt - short-term	—	3,000
Total current liabilities	13,025	21,855
Term debt - long-term	19,086	26,140
Deferred CIRM grant liability	14,950	19,592
Warrant liability	1,591	1,271
Deferred tax liability	55	55
Other long-term liabilities	671	5,421
Total liabilities	49,378	74,334
Commitments and contingencies (*Note 12*)		
Convertible preferred stock (Series A, A-1, B and C), $0.0001 par value: 18,410,938 and 33,085,827 shares authorized at December 31, 2018 and 2019, respectively; 18,200,011 and 32,934,785 shares issued and outstanding at December 31, 2018 and 2019, respectively; liquidation preference of $222,173 at December 31, 2019	72,460	222,173
Stockholders' equity:		
Common stock, $0.0001 par value: 41,468,474 and 57,013,463 shares authorized at December 31, 2018 and 2019, respectively; 12,275,579 and 13,196,419 shares issued and outstanding at December 31, 2018 and 2019, respectively	2	2
Additional paid-in capital	(11,026)	2,689
Accumulated other comprehensive income	—	19
Accumulated deficit	(65,694)	(152,221)
Total stockholders' deficit	(76,718)	(149,511)
Total liabilities, convertible preferred stock and stockholders' deficit	$ 45,120	$ 146,996

The accompanying notes are an integral part of these financial statements.

Poseida Therapeutics, Inc.
CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(in thousands, except share and per share amounts)

	Year Ended December 31,	
	2018	2019
Operating expenses:		
Research and development	$ 30,883	$ 60,393
General and administrative	9,674	18,457
Increase in contingent consideration (inclusive of related party amounts of $587 and $2,739, respectively)	1,432	6,683
Total operating expenses	41,989	85,533
Loss from operations	(41,989)	(85,533)
Other income (expense):		
Interest expense	(1,796)	(3,553)
Other income (expense), net	(821)	2,559
Net loss before income tax	(44,606)	(86,527)
Income tax benefit	202	—
Net loss	$ (44,404)	$ (86,527)
Other comprehensive income:		
Other comprehensive income (net of tax expense of $0.0 million for each of the periods ending December 31, 2018 and 2019)	$ —	$ 19
Total other comprehensive income	$ —	$ 19
Comprehensive loss	$ (44,404)	$ (86,508)
Net loss per share attributable to common stockholders, basic and diluted	$ (3.64)	$ (6.86)
Weighted-average shares of common stock, basic and diluted	12,183,979	12,618,413
Pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)		$ (2.42)
Pro forma weighted-average shares of common stock outstanding, basic and diluted (unaudited)		35,929,992

The accompanying notes are an integral part of these financial statements.

Poseida Therapeutics, Inc.
CONSOLIDATED STATEMENTS OF CHANGES IN CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT
(in thousands, except share amounts)

	Convertible Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount				
Balance at January 1, 2018	12,950,443	$ 42,146	11,762,423	$ 1	$ (12,254)	$ —	$ (21,290)	$ (33,543)
Net loss	—	—	—	—	—	—	(44,404)	(44,404)
Issuance of common stock under employee stock compensation plans	—	—	512,567	1	253	—	—	254
Issuance of common stock for acquisition of Vindico	—	—	475	—	—	—	—	—
Issuance of Series B preferred stock for cash, net of issuance costs $186	5,249,568	30,314	—	—	—	—	—	—
Stock-based compensation expense	—	—	—	—	975	—	—	975
Balance at December 31, 2018	18,200,011	$ 72,460	12,275,579	$ 2	$ (11,026)	$ —	$ (65,694)	$ (76,718)
Net loss	—	—	—	—	—	—	(86,527)	(86,527)
Issuance of common stock under employee stock compensation plans	—	—	54,679	—	69	—	—	69
Issuance of common stock for acquisition of Vindico	—	—	866,125	—	10,596	—	—	10,596
Issuance of Series C preferred stock for cash, net of issuance costs $287	14,734,774	149,713	—	—	—	—	—	—
Stock-based compensation expense	—	—	—	—	3,050	—	—	3,050
Unrealized gain on marketable securities	—	—	—	—	—	19	—	19
Balance at December 31, 2019	32,934,785	$222,173	13,196,419	$ 2	$ 2,689	$ 19	$ (152,221)	$ (149,511)

The accompanying notes are an integral part of these financial statements.

Poseida Therapeutics, Inc.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Year Ended December 31, 2018	2019
OPERATING ACTIVITIES		
Net loss	$ (44,404)	$ (86,527)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation & amortization expense	689	1,193
Loss on disposal of assets	—	448
Impairment of IPR&D	1,060	—
Stock-based compensation	975	3,050
Change in fair value of contingent liabilities	1,432	6,679
Change in fair value of warrant liability	1,187	(519)
Accretion of discount on issued term debt	531	853
Deferred taxes	(202)	—
Imputed rent expense	—	111
Write off of deferred financing costs	—	855
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	(2,044)	726
Other long-term assets	(665)	(1,676)
Accounts payable	1,004	1,530
Accrued liabilities	2,658	7,132
Accrued interest	(286)	—
Other long-term liabilities	51	1,755
Net cash used in operating activities	(38,014)	(64,390)
INVESTING ACTIVITIES		
Purchases of property and equipment	(1,284)	(5,156)
Purchases of short-term investments	—	(71,436)
Proceeds from maturities of short-term investments	—	34,000
Net cash used in investing activities	(1,284)	(42,592)
FINANCING ACTIVITIES		
Net proceeds from stock option exercises	254	69
Issuance of Series B financing, net of issuance costs	30,314	—
Issuance of Series C financing, net of issuance costs	—	149,713
Payment of deferred offering costs	(855)	—
Net proceeds from CIRM	14,950	4,642
Proceeds from term debt	10,000	10,000
Payment of debt issuance costs	(595)	(53)
Net cash provided by financing activities	54,068	164,371
Net increase in cash and cash equivalents	14,770	57,389
Cash and cash equivalents at beginning of period	15,625	30,395
Cash and cash equivalents at end of period	$ 30,395	$ 87,784
Non-cash investing and financing activities:		
Issuance of common stock for acquisition	$ —	$ 10,596
Purchases of property and equipment included in accounts payable and accrued liabilities	$ 871	$ 1,887
Tenant improvement receivable from landlord	$ —	$ 421
Construction financing liability	$ —	$ 2,166
Deferred offering costs incurred but not yet paid	$ 927	$ —
Supplemental disclosure of cash flow information:		
Interest paid	$ 1,463	$ 2,631

The accompanying notes are an integral part of these financial statements.

Poseida Therapeutics, Inc.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1—Nature of Business and Basis of Presentation

Nature of Operations

Poseida Therapeutics, Inc. (the "Company" or "Poseida") is a clinical-stage biopharmaceutical company dedicated to utilizing its proprietary gene engineering platform technologies to create next generation cell and gene therapeutics with the capacity to cure.

The Company is subject to risks and uncertainties common to development-stage companies in the biotechnology industry, including, but not limited to, development by competitors of new technological innovations, dependence on key personnel, protection of proprietary technology, compliance with government regulations and the ability to secure additional capital to fund operations. Product candidates currently under development will require significant additional research and development efforts, including extensive preclinical and clinical testing and regulatory approval prior to commercialization. These efforts require significant amounts of additional capital, adequate personnel and infrastructure and extensive compliance-reporting capabilities. Even if the Company's therapeutic development efforts are successful, it is uncertain when, if ever, the Company will realize significant revenue from product sales.

Reverse Stock Split

These consolidated financial statements reflect a 1-for-1.247 reverse stock split of the Company's common stock, which became effective on July 2, 2020. All share and per share data for all periods presented in the accompanying consolidated financial statements and notes thereto have been adjusted retrospectively, where applicable, to reflect the reverse stock split.

Going Concern

These consolidated financial statements have been prepared assuming the Company will continue as a going concern, which assumes the realization of assets and the satisfaction of liabilities and commitments in the normal course of business.

In accordance with Accounting Standards Update ("ASU") 2014-15, *Presentation of Financial Statements–Going Concern (Subtopic 205-40): Disclosure of Uncertainties About an Entity's Ability to Continue as a Going Concern*, management is required to perform a two-step analysis over its ability to continue as a going concern. Management must first evaluate whether there are conditions and events that raise substantial doubt about the Company's ability to continue as a going concern (step 1). If management concludes that substantial doubt is raised, management is also required to consider whether its plans alleviate that doubt (step 2).

The Company has experienced net losses and negative cash flows from operations since its inception and has relied on its ability to fund its operations primarily through equity financings. The Company expects to continue to incur net losses for at least the next several years. For the years ended December 31, 2018 and 2019, the Company recorded a net loss of $44.4 million and $86.5 million, respectively. Additionally, during the years ended December 31, 2018 and 2019, the Company used cash in operations of $38.0 million and $64.4 million, respectively. As of December 31, 2019, the Company had an accumulated deficit of $152.2 million and cash, cash equivalents and short-term investments of $125.3 million. Management has prepared cash flow forecasts which indicate that based on the Company's expected operating losses and negative cash flows, there is substantial doubt about the Company's ability to continue as a going concern, within one year after the date that these consolidated financial statements are issued.

The Company's ability to continue as a going concern is dependent upon its ability to raise additional funding. The Company is seeking to complete an initial public offering ("IPO") of its common stock. In the event

the Company does not complete an IPO, the Company expects to seek additional funding through private equity financings and/or strategic collaborations. If the Company is unable to obtain adequate financing, it could be forced to delay, reduce or eliminate its research and development programs or other operations. If any of these events occur, the Company's ability to achieve its development and commercialization goals would be adversely affected. The Company does not have any additional financing in place and there can be no assurance that the Company can obtain financing, if at all, on terms acceptable to it.

Separation from Transposagen

Poseida was incorporated on December 16, 2014 under the laws of the State of Delaware. On February 9, 2015, the Company separated from Transposagen Biopharmaceuticals, Inc. ("Transposagen"), becoming an independent company as a result of a pro rata distribution of stock by Transposagen (the "Separation"). As part of the Separation, Transposagen transferred to Poseida certain intellectual property and patents ("IP"). Concurrently the rights to use and license such IP were transferred, through a royalty free license, to Transposagen and Hera Testing Laboratories, Inc. ("Hera"), another entity separated from Transposagen, to support development and future commercialization for their respective fields of use. Poseida uses the IP primarily in the field of human therapeutics. On February 9, 2015, Transposagen's shareholders received one share of Poseida's common stock for every one share of Transposagen's common stock held as of the Separation date.

Basis of Preparation and Consolidation

The consolidated financial statements reflect the Company's financial position, results of operations and cash flows, in conformity with generally accepted accounting principles in the United States ("GAAP") and include the accounts of Poseida Therapeutics, Inc. and its wholly-owned subsidiaries. All intercompany transactions and balances have been eliminated.

Note 2—Summary of Significant Accounting Policies

Use of Estimates

The preparation of consolidated financial statements in conformity with GAAP requires the Company to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. On an ongoing basis, the Company evaluates its estimates, which include, but are not limited to, estimates related to accrued expenses, contingent consideration, warrant liability, stock-based compensation expense, deferred tax valuation allowances and the fair value of common stock. The Company bases its estimates on historical experience and other market-specific or relevant assumptions that it believes to be reasonable under the circumstances. Actual results may differ from those estimates or assumptions.

The Company utilizes significant estimates and assumptions in determining the fair value of its common stock. The Company has utilized various valuation methodologies in accordance with the framework of the 2004 American Institute of Certified Public Accountants Technical Practice Aid, *Valuation of Privately-Held Company Equity Securities Issued as Compensation*, to estimate the fair value of its common stock. Each valuation methodology includes estimates and assumptions that require the Company's judgment. These estimates and assumptions include a number of objective and subjective factors, including the prices at which the Company sold shares of preferred stock and the superior rights, preferences and privileges of the preferred stock relative to the common stock at the time of each grant; the Company's stage of development and material risks related to its business; the progress of the Company's research and development programs, including the status and results of preclinical studies for its product candidates and progress of its development of manufacturing processes; external market conditions affecting the biopharmaceutical industry and trends within the biopharmaceutical industry; the Company's results of operations and financial position, including its levels of

available capital resources, outstanding debt and its historical and forecasted performance and operating results; the lack of an active public market for the Company's common stock and preferred stock; the likelihood of achieving a liquidity event, such as an IPO or sale of the Company in light of prevailing market conditions; the hiring of key personnel; and the analysis of IPOs and the market performance of publicly traded companies in the biopharmaceutical industry, as well as recently completed mergers and acquisitions of peer companies. Significant changes to the key assumptions used in the valuations could result in different fair values of common stock at each valuation date.

Unaudited Pro Forma Information

Upon (i) the closing of an IPO of the Company's common stock at a per share price to the public of at least $15.67, as adjusted for any stock dividends, combinations, splits, and recapitalizations, and resulting in gross proceeds to the Company of at least $100.0 million ("Qualified IPO"), or (ii) the affirmative vote by holders of at least (A) a majority of the then-outstanding Preferred Stock and (B) 35% of the outstanding shares of Series C Preferred Stock (as defined below), all currently outstanding shares of convertible preferred stock will automatically convert into shares of common stock.

Pro forma basic and diluted net loss per share has been computed to give effect to the conversion of the shares of the Company's convertible preferred stock into common stock as if such conversion had occurred at the beginning of the period or the date of original issuance. The pro forma net loss per share does not include the shares of common stock expected to be sold and related proceeds to be received from an IPO.

Segment Information

The Company's sole operations consist of developing therapeutics for patients with high unmet medical need. Accordingly, the Company has determined that it operates in one operating segment. Operating segments are defined as components of an enterprise about which separate financial information is evaluated regularly by the Company's chief operating decision maker, who is its chief executive officer, in deciding how to allocate resources and assess performance. The Company's chief operating decision maker allocates resources and assesses performance based upon discrete financial information at the consolidated level. All of the Company's tangible assets are held in the United States.

Business Combination

The Company includes the results of operations of the businesses that it acquires as of the respective dates of acquisition. The Company allocates the fair value of the purchase price for its acquisitions to the tangible and intangible assets acquired and liabilities assumed based on their respective fair values at the date of acquisition. Goodwill is measured as the excess of the fair value of purchase consideration over the fair values of the assets acquired and liabilities assumed. When determining the fair value of assets acquired and liabilities assumed, the Company makes significant estimates and assumptions, especially with respect to intangible assets. The Company's estimates of fair value are based upon assumptions believed to be reasonable, but which are inherently uncertain and unpredictable and, as a result, actual results may differ from estimates. During the measurement period, not to exceed one year from the date of acquisition, we may record adjustments to the assets acquired and liabilities assumed, with a corresponding offset to goodwill if new information is obtained related to facts and circumstances that existed as of the acquisition date. After the measurement period, any subsequent adjustments are reflected in the Company's consolidated statements of operations and comprehensive loss.

Acquisition costs are expensed as incurred. There were no new business combinations for the years ending December 31, 2018 and 2019.

Fair Value Measurements

Certain financial instruments are required to be recorded at fair value. Other financial instruments, like cash are recorded at cost, which approximates fair value. Cash equivalents and short-term investments are comprised of available-for-sale securities, which are carried at fair value. Additionally, carrying amounts of accounts payable and accrued liabilities approximate fair value because of the short maturity of those instruments. The carrying value of the Company's term debt approximates its fair value due to its variable interest rate, which approximates a market interest rate.

Concentration of Business Risk

The Company relies, and expects to continue to rely, on a small number of vendors to manufacture supplies and materials for its development programs. These programs could be adversely affected by a significant interruption in these manufacturing services.

Risk and Uncertainties

In December 2019, COVID-19, a novel strain of coronavirus, was first reported in Wuhan, China and has since become a global pandemic. The virus continues to spread globally, has been declared a pandemic by the World Health Organization and has spread to over 100 countries, including the United States. The impact of this pandemic has been and will likely continue to be extensive in many aspects of society, which has resulted in and will likely continue to result in significant disruptions to the global economy, as well as businesses and capital markets around the world.

Potential impacts to the Company's business include, but are not limited to, temporary closures of its facilities or those of its vendors, disruptions or restrictions on its employees' ability to travel, disruptions to or delays in ongoing laboratory experiments, preclinical studies, clinical trials, third-party manufacturing supply and other operations, the potential diversion of healthcare resources away from the conduct of clinical trials to focus on pandemic concerns, interruptions or delays in the operations of the U.S. Food and Drug Administration or other regulatory authorities, and the Company's ability to raise capital and conduct business development activities.

Deferred Offering Costs

The Company capitalizes certain legal, professional accounting and other third-party fees that are directly associated with in-process equity financings as deferred offering costs until such financings are consummated. After consummation of an equity financing, these costs are recorded as a reduction of additional paid-in capital generated as a result of the offering. Should the in-process equity financing be abandoned, the deferred offering costs will be expensed immediately as a charge to operating expenses in the consolidated statements of operations and comprehensive loss. During the year ended December 31, 2019, the Company expensed $1.8 million of costs, within general and administrative expenses, previously capitalized and associated with the Company's abandoned efforts to complete an initial public offering in early 2019.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to a concentration of credit risk consist of cash, cash equivalents and short-term investments. The Company maintains its cash and cash equivalent balances with high-quality financial institutions and, consequently, the Company believes that such funds are subject to minimal credit risk. Deposits held at these institutions may exceed the amount of insurance provided on such deposits.

Poseida Therapeutics, Inc.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Cash and Cash Equivalents

The Company considers all highly liquid investments purchased with original final maturities of 90 days or less from the date of purchase to be cash equivalents. Cash and cash equivalents consist of deposits with financial institutions and marketable securities. Cash equivalents are reported at fair value. The Company utilizes a credit card that requires a cash collateral account to secure its outstanding balance. While cash in this account is not legally restricted, the availability of future credit is dependent upon maintenance of a compensating balance sufficient to cover outstanding balances. The balance held in this account as of both December 31, 2018 and 2019 was $0.2 million. Amounts outstanding on the credit card and recorded as accounts payable were $0.2 million and zero as of December 31, 2018 and 2019, respectively.

Short-Term Investments

Investments with a remaining maturity when purchased of greater than three months are classified as short-term investments on the balance sheet and consist primarily of U.S. Treasury and government agency obligations. As our entire investment portfolio is considered available for use in current operations, the Company classifies all investment as available-for-sale and as current assets. Debt securities are carried at fair value with the unrealized gains and losses included in other comprehensive income (loss) as a component of stockholders' equity until realized. Any premium or discount arising at purchase is amortized and/or accreted to interest income and/or expense over the life of the instrument. If any adjustment to fair value reflects a decline in the value of the investment that the Company considers to be "other than temporary," the Company reduces the investment to fair value through a charge to the statement of operations and comprehensive loss. No such adjustments were necessary during the periods presented.

Other Receivables, Net

Other receivables is recorded at the invoiced amount and is non-interest bearing. Other receivables, net consists of reimbursements from the Company's landlord for ongoing construction and is included within other current assets.

Goodwill and Other Intangible Assets

Intangible assets were acquired as part of a business combination and have been capitalized at their acquisition date fair value. Acquired definite lived intangible assets is amortized using the straight-line method over their respective estimated useful lives, which are evaluated whenever events or circumstances would indicate that an adjustment to the estimated useful lives would be appropriate.

The Company will additionally test its goodwill for impairment annually during the fourth quarter, or whenever events or changes in circumstances indicate an impairment may have occurred. Should an impairment exist, the impairment loss would be measured based on the excess of the carrying amount of the asset or asset group over the estimated asset's fair value. Impairment may result from, among other things, deterioration in the performance of the acquired business, adverse results from developmental work, adverse changes in applicable laws or regulations and a variety of other circumstances. In evaluating the recoverability of the carrying value of goodwill, the Company must make assumptions regarding estimated future cash flows and other factors to determine the fair value of the acquired assets. Changes in strategy or market conditions could significantly impact those judgments in the future and require an adjustment to the recorded balances. There were no impairments of goodwill for the years ended December 31, 2018 and 2019.

Indefinite-lived in process research and development ("IPR&D") is not subject to amortization but is tested annually for impairment or more frequently if there are indicators of impairment. The Company tests its

indefinite-lived IPR&D annually for impairment during the fourth quarter. In testing indefinite-lived IPR&D for impairment, the Company has the option to first assess qualitative factors to determine whether the existence of events or circumstances would indicate that it is more likely than not that its fair value is less than its carrying amount, or we can perform a quantitative impairment analysis to determine the fair value of the indefinite-lived IPR&D without performing a qualitative assessment. Qualitative factors that we consider include significant underperformance of the business in relation to expectations, significant negative industry or economic trends and significant changes or planned changes in the use of the assets. If the Company chooses to first assess qualitative factors and it determines that it is more likely than not that the fair value of the indefinite-lived IPR&D is less than its carrying amount, the Company would then determine the fair value of the indefinite-lived IPR&D. Under either approach, if the fair value of the indefinite-lived IPR&D is less than its carrying amount, an impairment charge would be recognized for the difference between the fair value and the carrying amount. There was a $1.1 million impairment for the year ended December 31, 2018 (see Note 5). There was no impairment of IPR&D for the year ended December 31, 2019. The non-compete agreement intangible asset relates to agreements with former Vindico NanoBioTechnology, Inc. (“Vindico”) management to not pursue other ventures within the same field of the acquired technology for two years from the date of acquisition. The non-compete agreements will be amortized straight-line over the effective period of the agreement.

Property and Equipment

Property and equipment are stated at cost and depreciated or amortized using the straight-line method, based on their estimated useful lives as follows:

Asset Classification	Estimated Useful Life (years)
Lab equipment	5
Leasehold improvements	Lesser of useful life or lease-term
Computer equipment and software	3
Furniture and fixtures	7

Maintenance and repairs are charged to expense as incurred. When assets are retired or otherwise disposed of, the cost and accumulated depreciation are removed from the Company’s consolidated balance sheet and any resulting gain or loss is reflected in the Company’s consolidated statement of operations and comprehensive loss.

All leases are evaluated under applicable criteria and classified as either an operating, capital or build-to-suit lease. The Company records rent expense on a straight-line basis over the initial term of a lease. The difference between the rent due under the stated periods of the lease compared to that of the straight-line basis is recorded as prepaid rent within prepaid expenses and other current assets or deferred rent within other long-term liabilities in the Company’s consolidated balance sheets. The Company currently holds a balance within deferred rent for the years ending December 31, 2018 and 2019.

Property and equipment are reviewed annually for impairment or whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability is measured by comparison of the carrying amount to the future net undiscounted cash flows which the assets are expected to generate. If such assets are considered to be impaired, the impairment to be recognized is measured by the amount by which the carrying amount of the assets exceeds the projected discounted future net cash flows arising from the asset. There has been no impairment of long-lived assets during the years ended December 31, 2018 and 2019.

Research and Development

Research and development expense consists of labor, material, equipment, and allocated facilities costs of the Company's scientific staff who are working on research and development projects. Research and development costs are charged to operations as incurred.

Upfront payments and milestone payments made for the licensing of technology are expensed as research and development in the period in which they are incurred. Advance payments for goods or services to be received in the future for use in research and development activities are recorded as prepaid expenses or other long-term assets. The advanced payments are expensed as the related goods are delivered or the services are performed.

Research and Manufacturing Contract Costs and Accruals

The Company has entered into various research and development and manufacturing agreements. These agreements are generally cancelable, and related payments are recorded as the corresponding expenses are incurred. The Company records accruals for estimated costs incurred to date. When evaluating the adequacy of the accrued liabilities, the Company analyzes progress of the research studies or clinical trials and manufacturing activities, including the phase or completion of events, invoices received and contracted costs. Significant judgments and estimates are made in determining the accrued balances at the end of any reporting period. Actual results could differ from the Company's estimates. The Company's historical accrual estimates have not been materially different from the actual costs.

Patent Costs

All patent-related costs incurred in connection with filing and prosecuting patent applications are expensed as incurred due to the uncertainty about the recovery of the expenditure. Amounts incurred are classified as general and administrative expenses.

Stock-Based Compensation

Equity awards to employees are measured and recognized in the consolidated financial statements based on the fair value of the award on the grant date. The Company currently uses the Black-Scholes valuation model to estimate the grant date fair value of their share-based payments. The model requires the Company to make a number of assumptions including expected volatility, risk-free interest rate, expected term and expected dividend. Stock-based compensation expense is recognized straight-line over the term of the option grant. All option grants require continued service to continue vesting. Forfeitures are recognized as they occur.

The Company recognizes the fair value of stock options granted to non-employees as stock-based compensation expense over the period in which the related services are received. Stock-based compensation expense related to stock options granted to non-employees is recognized based on the grant date fair value of awards as the stock options are earned. The Company believes that the estimated fair value of stock options is more readily measurable than the fair value of the services rendered.

Comprehensive Loss

Comprehensive loss includes net loss as well as other comprehensive income (loss). Other comprehensive income (loss) consists of unrealized gains and losses on marketable securities.

Poseida Therapeutics, Inc.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Net Income (Loss) Per Share

The Company follows the two-class method when computing net income (loss) per share, as the Company has issued shares that meet the definition of participating securities. The two-class method determines net income (loss) per share for each class of common and participating securities according to dividends declared or accumulated and participation rights in undistributed earnings. The two-class method requires income available to common stockholders for the period to be allocated between common and participating securities, which include the Company's Series A, Series A-1, Series B and Series C convertible preferred stock, based upon their respective rights to receive dividends as if all income for the period had been distributed.

Basic net income (loss) per share attributable to common stockholders is computed by dividing the net income (loss) attributable to common stockholders by the weighted-average number of shares of common stock outstanding for the period. Diluted net income (loss) attributable to common stockholders is computed by adjusting net income (loss) attributable to common stockholders to reallocate undistributed earnings based on the potential impact of dilutive securities. Diluted net income (loss) per share attributable to common stockholders is computed by dividing the diluted net income (loss) attributable to common stockholders by the weighted-average number of shares of common stock outstanding for the period, including potential dilutive common shares assuming the dilutive effect of common stock equivalents.

The Company's convertible preferred stock contractually entitles the holders of such shares to participate in distributions but does not contractually require the holders of such shares to participate in losses of the Company. Accordingly, in periods in which the Company reports a net loss, such losses are not allocated to such participating securities. In periods in which the Company reports a net loss attributable to common stockholders, diluted net loss per share attributable to common stockholders is the same as basic net loss per share attributable to common stockholders, since dilutive common shares are not assumed to have been issued if their effect is anti-dilutive. The Company reported a net loss attributable to common stockholders for the years ended December 31, 2018 and 2019.

Unaudited Pro Forma Net Loss Per Share

Upon the closing of a Qualified IPO, all currently outstanding shares of convertible preferred stock will automatically convert into shares of common stock.

Pro forma basic and diluted net loss per share has been computed to give effect to the conversion of the shares of the Company's convertible preferred stock into common stock as if such conversion had occurred at the beginning of the period or the date of original issuance. The pro forma net loss per share does not include the shares of common stock expected to be sold and related proceeds to be received from the IPO.

Income Taxes

Deferred tax assets/liabilities are determined based on the difference between the financial statement carrying amounts of assets and liabilities and their respective tax bases, as well as net operating losses and credit carry forwards applied by the enacted tax rates expected to be in effect for the year in which the differences are expected to reverse. Changes in deferred tax assets and liabilities are recorded in the provision for income taxes. The Company assesses the likelihood that its deferred tax assets will be recovered from future taxable income and, to the extent it believes, based upon the weight of available evidence, that it is more likely than not that all or a portion of the deferred tax assets will not be realized, a valuation allowance is established through a charge to income tax expense. Potential for recovery of deferred tax assets is evaluated by estimating the future taxable profits expected and considering prudent and feasible tax planning strategies.

The Company accounts for uncertainty in income taxes recognized in the consolidated financial statements by applying a two-step process to determine the amount of tax benefit to be recognized. First, the tax position must be evaluated to determine the likelihood that it will be sustained upon external examination by the taxing authorities. If the tax position is deemed more-likely-than-not to be sustained, the tax position is then assessed to determine the amount of benefit to recognize in the consolidated financial statements. The amount of the benefit that may be recognized is the largest amount that has a greater than 50% likelihood of being realized upon ultimate settlement. The provision for income taxes includes the effects of any resulting tax reserves, or unrecognized tax benefits, that are considered appropriate as well as the related net interest and penalties.

Emerging Growth Company Status

The Company is an emerging growth company, as defined in the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act"). Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. The Company has elected to use this extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date that it (i) is no longer an emerging growth company or (ii) affirmatively and irrevocably opts out of the extended transition period provided in the JOBS Act. As a result, these consolidated financial statements may not be comparable to companies that comply with the new or revised accounting pronouncements as of public company effective dates.

Recently Adopted Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2014-09, *Revenue from Contracts with Customers (Topic 606)*. ASU 2014-9 is a comprehensive new revenue recognition model that requires a company to recognize revenue to depict the transfer of goods or services to a customer at an amount that reflects the consideration it expects to receive in exchange for those goods or services. In August 2015, the FASB issued ASU 2015-14, *Revenue from Contracts with Customers Deferral of Effective Date*. The amendments in this update defer the original effective date of ASU 2014-09 for all entities by one year. The Company adopted this standard on January 1, 2018 using the modified retrospective approach, the adoption of this standard had no impact on the financial statements as the Company currently has no marketed products or ongoing collaboration agreements.

In May 2017, the FASB issued ASU 2017-09, *Compensation-Stock Compensation (Topic 718): Scope of Modification Accounting*, which clarifies when a change to terms or conditions of a share-based payment award must be accounted for as a modification. The new guidance requires modification accounting if the vesting condition, fair value or the award classification is not the same both before and after a change to the terms and conditions of the award. The Company adopted this standard on January 1, 2018. The adoption of this standard had no impact on the financial statements.

In June 2018, the FASB issued ASU 2018-07, *Improvements to Nonemployee Share-Based Payment Accounting*. The new standard simplifies the accounting for share-based payments to nonemployees by aligning it with the accounting for share-based payments to employees, with certain exceptions. The new standard became effective beginning January 1, 2019 and early adoption is permitted. The Company early adopted ASU 2018-07 effective January 1, 2018. The adoption of this standard did not have a material impact on the Company's financial position or results of operations upon adoption.

Poseida Therapeutics, Inc.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Recently Issued Accounting Pronouncements

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*. The FASB subsequently issued ASU 2018-10 *Codification Improvements to Topic 842, Leases*, ASU 2018-11, *Leases (Topic 842): Targeted Improvements*, and ASU 2019-01, *Leases (Topic 842): Codification Improvements*, to further amend ASU 2016-02. ASU 2016-02, as amended, provides revised guidance related to the accounting and reporting of leases, including a requirement for lessees to recognize most leases on the balance sheet. The recognition, measurement and presentation of expenses and cash flows arising from a lease by a lessee will depend on its classification as a finance or operating lease. For public entities, the guidance is effective for fiscal years beginning after December 15, 2018, and for non-public entities, the guidance is effective for fiscal years beginning after December 15, 2020, with early adoption permitted. Companies may adopt retrospectively as of the earliest period presented or retrospectively at the beginning of the period of adoption through a cumulative-effect adjustment, in each case with a number of practical expedients that entities may elect to apply. The Company expects to implement the standard in 2020 with a cumulative-effect adjustment recorded as of January 1, 2020. While management is currently assessing the impact this new standard will have, the expected primary impact to its consolidated financial position upon adoption will be the recognition, on a discounted basis, of its minimum commitments under noncancelable operating leases on its consolidated balance sheets resulting in the recording of right of use assets and lease liabilities. The Company's current minimum commitments under noncancelable operating leases are disclosed in Note 12.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement*. The new standard removes certain disclosures, modifies certain disclosures and adds additional disclosures related to fair value measurement. The new standard will be effective beginning January 1, 2020. The Company is currently evaluating the potential impact ASU 2018-13 may have on its disclosures upon adoption.

Note 3–Financial Instruments

The following table summarizes the amortized cost and fair value of securities available-for-sale at December 31, 2019 (in thousands):

	Amortized Cost/Cost	Unrealized Gains	Unrealized Losses	Fair Value
Money market fund	$ 63,744	$ —	$ —	$ 63,744
U.S. government agency securities and treasuries	42,503	19	—	42,522
Total	$106,247	$ 19	$ —	$106,266

No available-for-sale debt securities held as of December 31, 2019 had remaining maturities greater than one year.

Note 4–Fair Value Measurement

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants as of the measurement date. Applicable accounting guidance provides an established hierarchy for inputs used in measuring fair value that maximizes the use of observable inputs and minimizes the use of unobservable inputs by requiring that the most observable inputs be used when available. Observable inputs are inputs that market participants would use in valuing the asset or liability and are developed based on market data obtained from sources independent of the Company. Unobservable inputs are inputs that

reflect the Company's assumptions about the factors that market participants would use in valuing the asset or liability. There are three levels of inputs that may be used to measure fair value:

- Level 1: Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities
- Level 2: Significant other observable inputs other than Level 1 prices such as quoted prices in markets that are not active, or inputs that are observable, either directly or indirectly, for substantially the full term of the asset or liability
- Level 3: Prices or valuation techniques that require inputs that are both significant to the fair value measurement and unobservable (i.e., supported by little or no market activity)

The Company has classified assets and liabilities measured at fair value on a recurring basis as follows (in thousands):

	Level 1	Level 2	Level 3
At December 31, 2018:			
Liabilities			
Contingent consideration	$ —	$ —	$ 3,917
Warrant liability	—	—	1,591
Total liabilities	$ —	$ —	$ 5,508
At December 31, 2019:			
Assets			
Cash equivalents	$ 68,732	$ —	$ —
Short-term investments	37,534	—	—
Total assets	$ 106,266	$ —	$ —
Liabilities			
Contingent consideration	$ —	$ —	$ —
Warrant liability	—	—	1,271
Total liabilities	$ —	$ —	$ 1,271

In October 2016, we acquired Vindico pursuant to an agreement and plan of merger and reorganization among the Company, Vindico and the parties thereto (as amended, the "Vindico merger agreement"). In connection with the Vindico acquisition, the Company recorded goodwill and other intangible assets (see Note 5), which are valued on a nonrecurring basis. During the year ended December 31, 2018, the Company recorded an impairment related to the indefinite-lived intangible assets. The inputs used in the impairment fair value analysis fall within Level 3 of the fair value hierarchy due to the significant unobservable inputs used to determine fair value.

In connection with the Vindico acquisition, the Company agreed to pay additional purchase consideration, based on the achievement of a certain developmental milestone using the acquired technology by October 2018, payable in shares of the Company's common stock. In July 2018, the Company amended the terms of the Vindico merger agreement, which included an extension of contingency period through July 2019, the calculation to determine the number of shares to be settled and an option to settle the contingency in cash under certain circumstances. This contingent consideration is measured at fair value and is based on significant inputs not observable in the market, which represents a Level 3 measurement within the fair value hierarchy. The value of contingent consideration uses assumptions the Company believes would be made by a market

participant. The Company estimates the fair value of contingent consideration on an on-going basis as additional data impacting the assumptions is obtained.

Contingent consideration may change significantly as development progresses and additional data is obtained, impacting the Company's assumptions regarding probabilities of successful achievement of the milestone and timing in which it is expected to be achieved. In evaluating the fair value information, judgment is required to interpret the market data used to develop the estimates. The estimates of fair value may not be indicative of the amounts that could be realized in a current market exchange. Accordingly, the use of different market assumptions and/or different valuation techniques could result in materially different fair value estimates.

The significant unobservable inputs used in the measurement of fair value of the Company's contingent consideration are the probability of successful achievement of the milestone, the probability of settling the milestone in shares, the number of shares to be issued and the valuation of the Company's common stock. Significant increases or decreases in the probability of success would result in a significantly higher or lower fair value measurement, respectively. Significant increases or decreases in the estimated valuation of common stock would result in a significantly higher or lower fair value measurement, respectively. As of December 31, 2018, the estimated probability of successfully achieving the milestone was determined to be 20% and the estimated fair value of the common stock used was $16.55 per share. The estimated number of shares issuable was 1.2 million as of December 31, 2018. In July 2019, the Company achieved the milestone and subsequently issued 866,125 shares of common stock to the former Vindico shareholders in August 2019. At the time of achievement, the liability was adjusted to reflect the achievement and the determined number of shares and fair value of common stock, determined to be $12.23 per share as of July 31, 2019.

The Company classified this contingent consideration as a liability on its consolidated balance sheets that it remeasured to fair value at each reporting date, and the Company recognized changes in the fair value of the contingent consideration liability as a component of operating income (loss) in its consolidated statements of operations and comprehensive loss. The Company recognized changes in the fair value of the contingent consideration liability until the milestone was met. Upon issuance of the common stock related to the milestone, the liability was reclassified to stockholder's deficit, within additional paid-in capital.

The preferred stock warrant liability in the table above consisted of the fair value of warrants to purchase Series A-1 convertible preferred stock ("Series A-1 Preferred Stock") and Series B convertible preferred stock ("Series B Preferred Stock") and was based on significant inputs not observable in the market, which represent a Level 3 measurement within the fair value hierarchy. The Company's valuation of the preferred stock warrants utilized the Black-Scholes option-pricing model, which incorporates assumptions and estimates to value the preferred stock warrants.

The quantitative elements associated with the Company's Level 3 inputs impacting the fair value measurement of the preferred stock warrant liability include the fair value per share of the underlying Series A-1 Preferred Stock and Series B Preferred Stock, the remaining contractual term of the warrants, risk-free interest rate, expected dividend yield and expected volatility of the price of the underlying preferred stock. The most significant assumption in the Black-Scholes option-pricing model impacting the fair value of the preferred stock warrants is the fair value of the Company's convertible preferred stock as of each remeasurement date. The Company determines the fair value per share of the underlying preferred stock by taking into consideration its most recent sales of its convertible preferred stock as well as additional factors that the Company deems relevant. As of December 31, 2018 and 2019, the fair value per share of the Series A-1 Preferred Stock was $13.54 and $10.36, respectively. As of December 31, 2018 and 2019, the fair value per share of the Series B Preferred Stock was $13.73 and $10.57, respectively. The Company is a private company and lacks company-specific historical

and implied volatility information of its stock. Therefore, it estimates its expected stock volatility based on the historical volatility of publicly traded peer companies for a term equal to the remaining contractual term of the warrants. The risk-free interest rate is determined by reference to the U.S. Treasury yield curve for time periods approximately equal to the remaining contractual term of the warrants. The Company has estimated a 0% dividend yield based on the expected dividend yield and the fact that the Company has never paid or declared dividends. The change in fair value of warrant liability was a loss of $1.2 million and a gain of $0.5 million, for the years ended December 31, 2018 and 2019, respectively, included with other income (expense) within the consolidated statement of operations and comprehensive loss.

A reconciliation of the level 3 liabilities is as follows (in thousands):

Fair value of Level 3 liabilities as of December 31, 2017	$ 2,760
Issuance of warrants to purchase shares of Series B convertible preferred stock	129
Change in fair value of contingent consideration	1,432
Change in fair value of warrant liability	1,187
Fair value of Level 3 liabilities as of December 31, 2018	$ 5,508
Change in fair value of contingent consideration	6,683
Reclassification of contingent consideration to stockholder's deficit	(10,596)
Issuance of February 2019 Series B Warrants	195
Change in fair value of warrant liability	(519)
Fair value of Level 3 liabilities at December 31, 2019	$ 1,271

Note 5–Composition of Certain Balance Sheet Components

Prepaid expenses and other current assets

Prepaid expenses and other current assets consist of the following as of (in thousands):

	December 31, 2018	December 31, 2019
Landlord reimbursement	$ —	$ 421
Rent	69	259
Insurance	52	204
Contract research services	1,923	543
Other	201	434
Total prepaid expenses and other current assets	$2,245	$1,861

Poseida Therapeutics, Inc.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Property and equipment, net

Property and equipment, net consist of the following as of (in thousands):

	December 31,	
	2018	2019
Lab equipment	$ 3,450	$ 6,957
Leasehold improvements	536	165
Computer equipment and software	144	456
Furniture and fixtures	80	560
Construction in progress	221	4,729
Total property and equipment	4,431	12,867
Less: Accumulated depreciation and amortization	(1,015)	(2,009)
Total property and equipment, net	$ 3,416	$10,858

Construction in progress represents capitalized costs for our manufacturing facility in San Diego, CA. Depreciation expense associated with property and equipment was $0.5 million and $1.2 million for the years ended December 31, 2018 and 2019, respectively.

Goodwill and other intangible assets, net

Goodwill and other intangible assets, net consist of the following as of (in thousands):

	December 31,	
	2018	2019
Goodwill	$4,228	$4,228
Indefinite lived intangible assets		
IPR&D	$1,320	$1,320
Definite lived intangible assets		
Non-compete agreements	580	580
Less: accumulated amortization	(580)	(580)
Total intangible assets, net	$1,320	$1,320

There were no impairments of goodwill for the years ended December 31, 2018 and 2019.

In connection with the Vindico acquisition, the Company acquired indefinite-lived intangible assets related to the acquired nanoparticle technology. During the year ended December 31, 2018, a delay in development of the acquired technology and results of recent preclinical activities, taken together constituted a triggering event that required the Company to evaluate the acquired indefinite lived intangible assets for impairment. The Company determined the best estimate of the current fair value of these assets was $1.3 million using a discounted cash flow method. Impairment expense of indefinite lived intangible assets was $1.1 million and zero for the years ended December 31, 2018 and 2019, included within research and development expenses in the consolidated statement of operations and comprehensive loss.

In connection with the Vindico acquisition, the Company acquired definite-lived intangible assets related to executed non-compete agreements. Amortization expense of acquired intangible assets was $0.2 million and zero million for the years ended December 31, 2018 and 2019, respectively. There is no remaining balance to amortize as of December 31, 2019.

Accrued and other liabilities

Accrued and other liabilities consist of the following as of (in thousands):

	December 31,	
	2018	2019
Contract research services	$3,043	$ 7,993
Payroll and related expense	1,623	3,283
Lease cancellation fee	—	979
Other	1,586	1,671
Total accrued and other liabilities	$6,252	$ 13,926

Note 6—California Institute of Regenerative Medicine Awards

The Company has been awarded funding from California Institute of Regenerative Medicine ("CIRM") to develop internal programs. Under the terms of the funding ("CIRM Award") both CIRM and the Company will co-fund a specified program, under which funding is paid in developmental milestones determined as a part of the award. The Company is obligated to share future revenue for the related program with CIRM. The percentage of revenue is dependent on the amount of the award received and whether revenue is from product sales or license fees. The maximum revenue sharing amount the Company may be required to pay to CIRM is equal to nine times the total amount awarded and paid to the Company. The Company has the option to decline any and all amounts awarded by CIRM. As an alternative to revenue sharing, the Company has the option to convert the award to a loan, which such option the Company must exercise on or before ten (10) business days after the FDA notifies the Company that it has accepted the Company's application for marketing authorization. In the event the Company exercises its right to convert the award to a loan, it would be obligated to repay the loan within ten (10) business days of making such election. Repayment amounts vary dependent on when the award is converted to a loan, ranging from 60% of the award granted to amounts received plus interest at the rate of the three-month LIBOR rate plus 10% per annum. Since the Company may be required to repay some or all of the amounts awarded by CIRM, the Company accounted for this award as a liability rather than revenue as the Company's current intent is to convert the award into a loan. Given the uncertainty in amounts due upon repayment, the Company has recorded amounts received without any discount or interest recorded, upon determination of amounts that would become due, the Company will adjust accordingly.

In December 2017, the Company was granted an award in the amount of $19.8 million from CIRM to support the Company's P-BCMA-101 Phase 1 clinical trial. The award is paid based on developmental milestones, of which $15.7 million has been received as of December 31, 2019 with up to an aggregate of $4.1 million in future milestone payments.

In September 2018, the Company was granted an award in the amount of $4.0 million from CIRM to support the Company's preclinical studies for P-PSMA-101 program. The award is paid based on developmental milestones, of which $3.9 million has been received as of December 31, 2019 with up to an aggregate of $0.1 million in future milestone payments.

Note 7—Term Debt

On July 25, 2017, the Company entered into a loan and security agreement (the "Original Loan Agreement") with Oxford Finance LLC ("Oxford"), whereby it borrowed $10.0 million (the "Original Term A Loan"). Balances under the Original Loan were due in monthly principal and interest payments, with a final maturity date of August 2021. The Initial Loan included a final payment fee of 8.50% of the original principal amount due upon maturity.

Poseida Therapeutics, Inc.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

In August 2018, the Company entered into an Amended and Restated Loan and Security Agreement ("Amended Loan Agreement") with Oxford, pursuant to which Oxford agreed to lend the Company up to $30.0 million, issuable in three separate term loans of the Original Term A Loan, $10.0 million ("New A Term Loan"), and $10.0 million ("Term B Loan", collectively referred to as the "Term Loans"). The Company received $10.0 million in proceeds from the New Term A Loan, net of debt issuance costs and accrued interest of $0.9 million. Under the terms of the Amended Loan Agreement the Company was permitted, at its sole discretion, to borrow $10.0 million under the Term B Loan following the achievement of a defined milestone event until the earlier of 60 days thereafter or December 20, 2018. In January 2019, the Company entered into an amendment with Oxford to extend the draw period of the Term B Loan through February 15, 2019. The Company drew the remaining $10.0 million in February 2019.

The Company evaluated the amendment in accordance with ASC Topic 470 *Debt*, which requires the assessment of whether the modification was considered a substantial modification, in which case the modification would be accounted for as a debt extinguishment. Based on the Company's evaluation, the modification was not considered substantial and as such treated as a debt modification.

All outstanding Term Loans will mature on March 1, 2023 (the "Maturity Date") and will have interest-only payments through October 1, 2020, followed by 30 equal monthly payments of principal and unpaid accrued interest. The Original Term A Loan and New Term A Loan (collectively "Term A Loan") will bear interest at a floating per annum rate equal to (i) 6.96% plus (ii) the greater of (a) the 30-day U.S. Dollar LIBOR rate reported in The Wall Street Journal on the last business day of the month that immediately precedes the month in which the interest will accrue and (b) 0.99%. The interest rate as of December 31, 2019 was 8.79%. The Term B Loan will bear interest at a floating per annum rate equal to (i) 6.94% for Term B plus (ii) the greater of (a) the 30-day U.S. Dollar LIBOR rate reported in The Wall Street Journal on the last business day of the month that immediately precedes the month in which the interest will accrue and (b) 2.0%. The interest rate for Term B as of December 31, 2019 was 8.94%. The Company will be required to make a final payment of 7.5% of the principal balance outstanding, payable on the earlier of (i) the Maturity Date, (ii) acceleration of any Term Loan, or (iii) the prepayment of the Term Loans.

There is an option to prepay all, but not less than all, of the borrowed amounts, provided that the Company will be obligated to pay a prepayment fee equal to (i) 3.0% of the outstanding principal balance of the applicable Term Loan if prepayment is made after the funding date through and including the first anniversary of the funding date (ii) 2.0% of the outstanding balance after the first anniversary through and including the second anniversary of the funding date of the Term Loan or (iii) 1.0% of the applicable Term Loan prepaid after the second anniversary of the funding date and prior to the Maturity Date.

The Company may use the proceeds from the Term Loans solely for working capital and to fund its general business requirements. The Company's obligations under the Loan Agreement are secured by a first priority security interest in substantially all of its current and future assets, other than our intellectual property. In addition, the Company has also agreed not to encumber its intellectual property assets, except as permitted by the Loan Agreement. While any amounts are outstanding under the Loan Agreement, the Company is subject to a number of affirmative and restrictive covenants, including covenants regarding dispositions of property, business combinations or acquisitions, among other customary covenants. The Company is also restricted from paying dividends or making other distributions or payments on its capital stock in excess of $0.3 million, on an annual basis, subject to limited exceptions. As of December 31, 2019, the Company was in compliance with all covenants under the Loan Agreement.

Pursuant to the Original Loan Agreement, on July 25, 2017, the Company issued to Oxford warrants to purchase an aggregate of up to 116,618 shares of the Company's Series A-1 Preferred Stock ("Series A-1

Warrants") at an exercise price of $3.43 per share. The warrants were immediately exercisable and will expire ten years from the date of the grant. The Company determined the fair value of the Series A-1 Warrants on the date of issuance was $0.3 million using the Black-Scholes pricing model utilizing the following inputs: risk-free interest rate—2.3%, volatility—77.8%, dividend yield—0% and expected life in years—10.

Pursuant to the Amended Loan Agreement, on August 13, 2018, the Company issued to Oxford warrants to purchase an aggregate of up to 17,212 shares of the Company's Series B Preferred Stock with an exercise price of $5.81 per share ("August 2018 Series B Warrants"). On February 19, 2019, in conjunction with drawing the remaining $10.0 million in principal, the Company issued to Oxford warrants to purchase an aggregate of up to an additional 17,212 shares of the Company's Series B Preferred Stock, with an exercise price of $5.81 per share ("February 2019 Series B Warrants"). The August 2018 Series B Warrants and February 2019 Series B Warrants (collectively "Series B Warrants") were immediately exercisable upon issuance and will expire ten years from the date of the grant. The Company determined the fair value of the August 2018 Series B Warrants on the date of issuance was $0.1 million using the Black-Scholes pricing model utilizing the following inputs: risk-free interest rate—2.9%, volatility—75%, dividend yield—0% and expected life in years—10. The Company determined the fair value of the February 2019 Series B Warrants on the date of issuance was $0.2 million using the Black-Scholes pricing model utilizing the following inputs: risk-free interest rate—2.7%, volatility—77%, dividend yield—0% and expected life in years—10.

The fair value of the warrants was treated as a debt discount and as a preferred stock warrant liability. The debt discount is amortized over the term of the loan to interest expense.

As of December 31, 2019, there was $20.0 million outstanding under the Term A Loan. The Term A Loan was recorded at its initial carrying value of $20.0 million. In connection with the Term A Loan, the debt issuance costs of $1.0 million have been recorded as a debt discount, including the remaining unrecognized discount from the Original Term A Loan, on the Company's consolidated balance sheets, which are being accreted to interest expense over the life of the Term A Loan. Interest on the term loan, consisting of the stated interest rate, final payment fee and amortization of the discount, is being recognized under the effective interest method using a rate of 12.38%.

As of December 31, 2019, there was $10.0 million outstanding under the Term B Loan. The Term B Loan was recorded at its initial carrying value of $10.0 million. In connection with the Term B Loan, the debt issuance costs of $0.3 million have been recorded as a debt discount, on the Company's consolidated balance sheets, which are being accreted to interest expense over the life of the Term B Loan. Interest on the term loan, consisting of the stated interest rate, final payment fee and amortization of the discount, is being recognized under the effective interest method using a rate of 12.07%.

As of December 31, 2019, the estimated future principal payments for the Term Loan due under the Loan Agreement are as follows (in thousands):

Year Ending December 31,	
2020	$ 3,000
2021	12,000
2022	12,000
2023	3,000
Total future principal payments	$30,000

Poseida Therapeutics, Inc.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Note 8—Related Party Transactions

The Company's related parties include directors and officers of the Company, as well as Transposagen and Hera (see Note 1). During each of the years ended December 31, 2018 and 2019 the Company purchased research and development related materials and services from Transposagen and Hera amounting to $0.1 million of expense.

The amendment to the Vindico merger agreement was deemed a related party transaction. The Company's Chief Executive Officer was also formerly Chief Executive Officer of Vindico as well as a greater than 10% shareholder in both entities. Holders of 53% of the Company's shares prior to acquisition also held 62% ownership of Vindico shares. As a result of his former ownership of Vindico's capital stock, the Company's Chief Executive Officer received 41.0% of the total milestone contingent consideration paid to former stockholders of Vindico in the form of common stock upon achievement of the Vindico milestone.

Note 9—Convertible Preferred Stock

As of each balance sheet date, the Preferred Stock consisted of the following (in thousands, except share amounts):

	December 31, 2018				
	Preferred Stock Authorized	Preferred Stock Issued and Outstanding	Carrying Value	Liquidation Preference	Common Stock Issuable Upon Conversion
Series A Preferred Stock	9,696,798	9,696,798	$ 31,063	$ 31,063	7,776,095
Series A-1 Preferred Stock	3,428,572	3,253,645	11,083	11,083	2,609,176
Series B Preferred Stock	5,285,568	5,249,568	30,314	30,314	4,209,754
Total	18,410,938	18,200,011	$ 72,460	$ 72,460	14,595,025

	December 31, 2019				
	Preferred Stock Authorized	Preferred Stock Issued and Outstanding	Carrying Value	Liquidation Preference	Common Stock Issuable Upon Conversion
Series A Preferred Stock	9,696,798	9,696,798	$ 31,063	$ 31,063	7,776,095
Series A-1 Preferred Stock	3,370,263	3,253,645	11,083	11,083	2,609,176
Series B Preferred Stock	5,283,992	5,249,568	30,314	30,314	4,209,754
Series C Preferred Stock	14,734,774	14,734,774	149,713	149,713	11,816,169
Total	33,085,827	32,934,785	$ 222,173	$ 222,173	26,411,194

The Company has issued Series A convertible preferred stock (the "Series A Preferred Stock"), Series A-1 Preferred Stock, Series B Preferred Stock and Series C convertible preferred stock ("Series C Preferred Stock"). The Series A Preferred Stock, Series A-1 Preferred Stock Series B Preferred Stock and Series C Preferred Stock are collectively referred to as the "Preferred Stock."

In December 2015, the Company issued 6,781,346 shares of Series A Preferred Stock with a stated value of $3.43 per share. The cash proceeds for the Series A Preferred Stock was $19.8 million, net of issuance costs of $0.4 million. There were outstanding convertible notes that were also converted in the Series A Preferred Stock financing.

Poseida Therapeutics, Inc.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Additionally, the Company and its lead investor agreed to issue an additional 2,915,452 shares of Series A Preferred Stock ("Milestone shares") on the same terms as the original shares issued under the Series A Preferred Stock financing, including a per share purchase price of $3.43, pursuant to specific operational milestone events occurring between May 15, 2016 and October 30, 2016.

In August 2016, subsequent to completion of specified milestones, the Company issued the Milestone shares with a stated value of $3.43 per share. The cash proceeds for Milestone shares was $8.2 million, net of issuance costs of $1.7 million. The commitment to issue additional Preferred Stock was accounted for as a contingent forward contract, which initially had no fair value and was subsequently re-measured to fair value. On the issuance of the preferred stock the contingent forward asset was recorded against the carrying amount of the Preferred Stock.

In July 2017, the Company issued 3,253,645 shares of Series A-1 Preferred Stock with a stated value of $3.43 per share. The cash proceeds for the Series A-1 Preferred Stock was $11.1 million, net of issuance costs of $0.1 million.

In March 2018, the Company issued 5,249,568 shares of Series B Preferred Stock with a stated value of $5.81 per share. The cash proceeds for the Series B Preferred Stock was $30.3 million, net of issuance costs of $0.2 million.

In the period between March and July 2019, the Company issued 14,734,774 shares of Series C Preferred Stock with a stated value of $10.18 per share. The cash proceeds for the Series C Preferred Stock was $149.7 million, net of issuance costs of $0.3 million.

The rights, preferences and privileges of the Preferred Stock are as follows:

Dividends

The holders of the outstanding shares of Preferred Stock are entitled to receive dividends, when and if declared by the Board of Directors. Such dividends are payable in preference to any dividends for common stock declared by the Board of Directors. As of December 31, 2019, no dividends have been declared.

Conversion

Each share of Preferred Stock is convertible at any time, at the option of the holder, into a number of fully paid shares of common stock. The conversion price is subject to adjustment for recapitalization (i.e. stock dividend, stock split, combination of shares, reorganization, recapitalization, reclassification or other similar event).

Each share of convertible Preferred Stock automatically converts into common stock at the then effective conversion rate upon the closing of a Qualified IPO, or upon the affirmative vote by holders of at least (i) a majority of the then-outstanding Preferred Stock and (ii) 35% of the outstanding shares of Series C Preferred Stock.

Liquidation

In the event of any voluntary or involuntary liquidation, dissolution or winding-up of the Company or Deemed Liquidation Event (as described below), the holders of the Preferred Stock shall be entitled to receive, prior and in preference to any distribution of any of the assets of the Company to the holders of the common

stock an amount equal to the greater of (i) the applicable Preferred Stock original issue price, plus any dividend declared but unpaid, or (ii) the amount per share that would have been payable had all shares of Preferred Stock been converted into common stock immediately prior to such Deemed Liquidation Event.

Unless the holders of the majority of the then-outstanding shares of Preferred Stock, voting together as a single class on an as-converted basis, elect otherwise, a Deemed Liquidation Event shall include a merger or consolidation (other than one in which stockholders of the Company own a majority by voting power of the outstanding shares of the surviving or acquiring corporation) or a sale, lease, transfer, exclusive license or other disposition of all or substantially all of the assets of the Company.

If upon the liquidation, dissolution or winding up of the Company, the assets of the Company legally available for distribution to the holders of the Preferred Stock are insufficient to permit the payment to such holders of the full amounts, then the entire assets of the corporation legally available for distribution shall be distributed with equal priority and pro rata among the holders of the Preferred Stock in proportion to the full amounts they would otherwise be entitled to receive.

After the payment or setting aside for payment to the holders of Preferred Stock of the full amounts specified above, the entire remaining assets of the Company legally available for distribution shall be distributed with equal priority and pro rata among the holders of the Preferred Stock and common stock.

As the Company's amended and restated certificate of incorporation contains a provision that upon a change of control of the Company the Preferred Stock is redeemable at the holder's option, the Preferred Stock have been classified outside of stockholders' deficit in the Company's consolidated balance sheets.

Voting

The holder of each share of Preferred Stock is entitled to the number of votes equal to the number of shares of common stock into which such holder's shares of Preferred Stock can be converted.

Note 10—Common Stock

The Company's amended and restated certificate of incorporation authorizes the Company to issue 45,720,499 shares of $0.0001 par value common stock. Each share of common stock is entitled to one vote. The holders of common stock are also entitled to receive dividends whenever funds are legally available and when declared by the Board of Directors, subject to the prior rights of holders of all classes of Preferred Stock outstanding. Since the Company's inception, there have been no dividends declared.

Note 11—Stock Option Plan

The Company provides for the granting of stock options to employees, directors, and consultants under the 2015 Equity Incentive Plan, as amended (the "2015 Plan"). As of December 31, 2019, 6,780,040 shares were authorized to be issued under the 2015 Plan. Options granted under the 2015 Plan may be incentive stock options ("ISOs"), nonstatutory stock options ("NSOs") Stock Appreciation Rights ("SARs"), Restricted Stock Awards ("RSAs)" or Restricted Stock Unit Awards ("RSUs"). As of December 31, 2019, there was 841,087 shares available for future option grants or direct issuance under the 2015 Plan. To date, the Company has issued ISOs and NSOs. Shares issued under the 2015 Plan are newly issued shares and there is no intention to repurchase previously issued shares. The exercise price of options granted under the 2015 Plan cannot be less than 100% of the fair value of the common stock. The term and vesting period of each option shall be stated in the underlying agreements. However, the term shall be no more than ten years from the date of grant and the Company's normal

practice is generally a vesting period over four years. In the case of an ISO granted to an optionee who, at the time the option is granted, owns stock representing more than ten percent of the voting power of all classes of stock of the Company, the term of the option shall be five years from the date of grant and issued at 110% of the fair value at the date of grant.

Following is a summary of the Company's stock option plan activity and related information for the year ended December 31, 2019:

	Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (years)	Intrinsic Value (thousands)
Balance at January 1, 2019	2,159,228	$ 4.26	8.47	$ 26,537
Options Granted	1,956,659	12.29		
Exercised	(54,715)	1.27		
Cancelled	(450,142)	4.82		
Balance at December 31, 2019	3,611,030	$ 8.58	8.65	$ 14,047
Options Vested & Expected to Vest as of December 31, 2019	3,611,030	$ 8.58	8.65	$ 14,047
Options Exercisable as of December 31, 2019	1,162,903	$ 4.11	7.21	$ 9,633

The aggregate intrinsic value of options exercised during the years ended December 31, 2018 and 2019 was $1.2 million and $0.7 million, respectively, determined as of the date of exercise. The Company received $0.3 million and $0.1 million in cash from options exercised during the years ended December 31, 2018 and 2019, respectively.

The Company recorded stock-based compensation expense in the following expense categories of its consolidated statements of operations and comprehensive loss (in thousands):

	Year Ended December 31,	
	2018	2019
Research and development	$ 527	$ 1,703
General and administrative	448	1,347
Total stock-based compensation	$ 975	$ 3,050

The weighted-average fair value of options granted during the years ended December 31, 2018 and 2019 was $4.79 and $8.47 per share, respectively. As of December 31, 2019, total unrecognized compensation cost related to stock options was $17.7 million, and the weighted-average period over which this cost is expected to be recognized is approximately 3.5 years. Total fair value of shares vested during the years ended December 31, 2018 and 2019 was $0.7 million and $2.8 million, respectively.

The assumptions that the Company used to determine the fair value of options granted to employees, non-employees and directors were as follows for the years ended December 31, 2018 and 2019:

	Year Ended December 31,	
	2018	2019
Risk-free interest rate	2.69-3.05%	1.57-2.58%
Expected volatility	80%	80-87%
Expected term (years)	5.8-6	4-6
Expected dividend	0%	0%

Risk-free interest rate—The risk-free interest rate is based on the U.S. Treasury zero coupon issues in effect at the time of grant for periods corresponding with the expected term of option.

Expected volatility—The expected volatility is estimated based on the average volatility for comparable publicly traded biotechnology companies over a period equal to the expected term of the stock option grants. The comparable companies were chosen based on their similar size, stage in the life cycle or area of speciality.

Expected term—The expected term represents the period that stock-based awards are expected to be outstanding. The expected term for option grants is determined using the simplified method. The simplified method deems the expected term to be the midpoint between the vesting date and the contractual life of the stock-based awards.

Expected dividend—The Company has never paid dividends on its common stock, and has no plans to pay any dividends on its common stock. Therefore, the Company used an expected dividend yield of zero.

Note 12—Commitments and Contingencies

Operating Leases

In March 2016, the Company entered into a lease agreement for a facility in San Diego, California to be used for research and development and administrative activities. The lease commenced on June 30, 2016 and had a 10.5-year initial term. The lease provided for rent abatements and scheduled increases in base rent. In connection with the lease, the Company made a one-time cash security deposit in the amount of $0.1 million, included in other long-term assets in the Company's consolidated balance sheet. As a result of outgrowing the office space and lab space and having executed a lease agreement for a larger facility, the Company terminated this lease agreement effective April 30, 2019. As part of the lease termination agreement, the Company committed to pay a $1.5 million cancellation fee to the landlord in three installments over a 1.5-year period. The Company has recorded the lease cancellation fee, gain from the deferred rent write-off, abandonment of the fixed assets as part of loss from continuing operations.

In October 2018, the Company entered into a lease agreement for a facility in San Diego, California to be used for research and development and administrative activities. The lease term commenced on April 1, 2019 and will expire on December 31, 2029. The lease provided for tenant improvements of $4.2 million and as costs were incurred, the Company performed an analysis to determine treatment based on the type of leasehold improvement. Assets determined to be lessee assets were not material and were recorded on the consolidated balance sheet as an asset with a corresponding liability within deferred rent. As of December 31, 2019, all costs were incurred and construction was completed. The lease also provides for rent abatements and scheduled increases in base rent. In connection with the lease, the Company made a one-time cash security deposit in the amount of $0.2 million, included in other long-term assets in the Company's consolidated balance sheet.

Poseida Therapeutics, Inc.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Lessee Involvement in Asset Construction

In October 2019, the Company entered into an amended lease agreement for additional space in its current location in San Diego, California to be used for research and development and administrative activities. The lease term is expected to commence on April 15, 2020 and expire on December 31, 2029. The amendment provides for tenant improvements up to $1.5 million. During the construction period, which will begin in 2020, the Company will be deemed the owner of the building due to the Company's responsibility to pay for a portion of the costs, especially any cost overruns. As these costs are incurred the Company will perform an analysis to determine treatment based on the type of leasehold improvement. The lease also provides for rent abatements and scheduled increases in base rent. In connection with the lease, the Company made a one-time cash security deposit in the amount of $0.1 million, included in other long-term assets in the Company's consolidated balance sheet.

In July 2019, the Company entered into a lease agreement for a facility in San Diego, California to be retrofitted to Good Manufacturing Practice standards and plan to use the facility for manufacturing in its early stage clinical trials. The Company is responsible for the leasehold improvements required to remodel the facility and bore the majority of the construction risk. As such, the Company is deemed for accounting purposes to be the owner of the building during the construction period, even though it is not the legal owner. As a result, construction costs that have been incurred by the landlord directly or indirectly through reimbursement to the Company as part of its tenant improvement allowance have been recorded as an asset within Property and equipment, net with a related financing obligation included in other long-term liabilities on the Company's consolidated balance sheet as of December 31, 2019. The Company has also included in these balance sheet balances the estimated fair value of the building as of the date construction began and related capitalized interest calculated during the construction period. The interest rate used for the construction period costs represents the Company's estimated incremental borrowing rate. As of December 31, 2019, the Company maintained on its balance sheet construction in progress of $2.4 million within property and equipment, net, as it relates to the fair value of the building, with the respective construction financing obligation recorded within other long-term liabilities. As of December 31, 2019, the Company incurred $0.3 million in construction costs to be reimbursed from the landlord, the Company reflected these costs as a receivable within prepaid expenses and other current assets in the Company's consolidated balance sheet.

The Company has leased other short-term lab and office space in Lexington, Kentucky and San Diego, California. These lease agreements have expired. Total rent expense for the years ended December 31, 2018 and 2019 was $0.8 million and $2.5 million, respectively.

Future annual minimum lease payments at December 31, 2019 were as follows (in thousands):

Year Ending December 31,	
2020	$ 2,662
2021	3,954
2022	4,259
2023	4,377
2024	4,505
Thereafter	24,638
Total future minimum lease payments	$ 44,395

Poseida Therapeutics, Inc.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

License Agreement with Janssen Biotech Inc.

On August 3, 2015, the Company entered into a license agreement ("Janssen Agreement") with Janssen pursuant to which the Company obtained exclusive worldwide rights to research, develop, manufacture and commercialize pharmaceutical products comprising autologous CAR-modified T-cells or any CAR-modified natural killer or CAR-modified natural-killer-like cells expressing certain Centyrin molecules or Centyrin CAR molecules for the treatment or prevention of any disease in humans. Pursuant to the Janssen Agreement, the Company paid Janssen an upfront fee of $0.2 million. Based on milestone developments, the Company has paid an additional $3.5 million through December 31, 2019. The Company is required to pay Janssen up to an aggregate of $75.8 million upon the achievement of certain clinical, regulatory and sales milestones for the first licensed product and up to an aggregate of $46.8 million upon the achievement of certain clinical, regulatory and sales milestones for each licensed product thereafter. The Company is also obligated to pay, on a product-by-product and country-by-country basis, royalties in the low single-digit percentage range on annual net sales.

April 2017 Commercial License Agreement with TeneoBio, Inc.

On April 27, 2017, the Company entered into a commercial license agreement (the "2017 TeneoBio Agreement") with TeneoBio, Inc. ("TeneoBio") pursuant to which the Company obtained exclusive worldwide rights to use and develop pharmaceutical products comprising allogeneic T-cells expressing a CAR molecule containing certain heavy chain sequences provided by TeneoBio.

Pursuant to the 2017 TeneoBio Agreement, the Company has paid TeneoBio $0.5 million through the Company's selection of the antibodies licensed under the 2017 TeneoBio Agreement. The Company is required to pay TeneoBio up to an aggregate of $20.5 million upon the first achievement of certain clinical and regulatory milestones for any allogeneic product and up to an aggregate of $20.5 million upon the first achievement of certain clinical and regulatory milestones for any autologous product. The Company is also obligated to pay, on a product-by-product and country-by-country basis, a royalty in the low single-digit percentage on net sales of any licensed products.

August 2018 Commercial License Agreement with TeneoBio, Inc.

On August 3, 2018, the Company entered into a commercial license agreement (the "2018 TeneoBio Agreement") with TeneoBio pursuant to which the Company obtained exclusive rights to research, develop and commercialize up to a certain number of targets from TeneoBio. Pursuant to the 2018 TeneoBio Agreement, the Company has paid TeneoBio an upfront fee of $4.0 million. The Company is required to pay TeneoBio up to an aggregate of $31.0 million upon the first achievement of certain clinical and regulatory milestones for each product, none of which have been met. The Company is also obligated to pay, on a product-by-product and country-by-country basis, a royalty in the low single-digit percentage on net sales of any licensed products.

October 2019 License Agreement with Genus Oncology, LLC

On October 24, 2019, the Company entered into a license agreement (the "Genus Agreement") with Genus Oncology, LLC ("Genus"), pursuant to which the Company paid Genus an upfront fee of $1.5 million and Genus granted the Company the option, which is exercisable for an additional $1.5 million fee, to obtain an exclusive worldwide license to research, develop and commercialize pharmaceutical products incorporating CAR cells expressing antibodies and derivatives thereof targeting MUC1.

Pursuant to the Genus Agreement, the Company is also required to pay Genus up to an aggregate of $71.0 million upon first achievement of certain clinical, regulatory and sales milestones for any Genus licensed

product and companion diagnostics. The Company is also obligated to pay, on a product-by-product and country-by-country basis, tiered royalties in the low to mid-single-digit percentage on net sales of any Genus licensed products and related companion diagnostics.

Legal Contingencies

In the ordinary course of business, the Company may face claims brought by third parties against the Company. The Company does not believe that there is any litigation, asserted or unasserted claim pending that could, individually or in the aggregate, have a material adverse effect on the Company's results of operations or financial condition.

Note 13—Income Taxes

The components of the pretax loss from operations for the years ended December 31, 2018 and 2019 are as follows (in thousands):

	Year Ended December 31,	
	2018	2019
U.S. Domestic	$ (44,581)	$ (86,527)
Foreign	(25)	—
Net loss before income tax	$ (44,606)	$ (86,527)

The benefit from income taxes for the years ended December 31, 2018 and 2019 consists of the following (in thousands):

	Year Ended December 31,	
	2018	2019
Deferred:		
Federal	$ (399)	$ —
State	197	—
Foreign	—	—
Total deferred benefit	(202)	—
Total benefit	$ (202)	$ —

Poseida Therapeutics, Inc.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

The (benefit from) provision for income taxes for the years ended December 31, 2018 and 2019 differs from the amount of income tax determined by applying the applicable U.S. statutory federal income tax rate to pretax income as a result of the following differences as of (in thousands):

	Year Ended December 31,	
	2018	2019
Federal statutory rate	$ (9,367)	$ (18,170)
Adjustments for tax effects of:		
State taxes, net	(2,822)	(5,384)
Permanent adjustments	351	(43)
Contingent consideration	301	1,403
Stock-based compensation	132	428
Tax credits	(857)	(5,828)
Unrecognized tax benefits	206	1,643
Intangible assets	(2,011)	—
Other, net	90	55
Change in valuation allowance	13,775	25,896
	$ (202)	$ —

Significant components of the Company's deferred tax assets and liabilities consist of the following as of (in thousands):

	December 31,	
	2018	2019
Deferred tax assets:		
Amortization	$ 1,854	$ 1,706
Grant income	4,184	5,483
Accrued expenses	375	915
Net operating losses	14,293	33,279
Income tax credit carryforwards	2,118	7,101
Other, net	188	1,151
Total deferred tax assets	23,012	49,635
Deferred tax liabilities:		
Depreciation	(562)	(1,295)
Acquired indefinite lived intangibles	(369)	(369)
Total deferred tax liabilities	(931)	(1,664)
Valuation allowance	(22,136)	(48,026)
Net deferred tax liability	$ (55)	$ (55)

The realization of deferred tax assets may be dependent on the Company's ability to generate sufficient income in future years in the associated jurisdiction to which the deferred tax assets relate. The Company considers all available positive and negative evidence, including scheduled reversals of deferred tax liabilities, projected future taxable income, tax planning strategies, and recent financial performance. A valuation allowance of $48.0 million has been recorded as of December 31, 2019, as compared to $22.1 million, as of December 31, 2018. The valuation allowance is based on Management's assessment that it is more likely than not that the Company will not have taxable income in the foreseeable future.

Deferred tax liabilities associated with indefinite-life intangibles cannot be considered a source of income to support the realization of deferred tax assets because the reversal of these deferred tax liabilities is considered indefinite. However, as the Company has an indefinite-life asset with an unlimited loss carryforward period within the same jurisdiction, and of appropriate character, the deferred tax liability associated with the indefinite-life intangible constitutes a source of taxable income to support the realization of the deferred tax asset, since both have indefinite reversal or expiration periods.

As of December 31, 2019, the Company had federal and state net operating loss carryforwards of $23.3 million and $120.9 million, respectively, which begin to expire in 2032 and the Company had federal net operating loss carryforwards that do not expire but utilization is limited to 80% of taxable income for any given tax year in the amount of $94.6 million.

As of December 31, 2019, the Company had federal orphan drug credits and research and development credits and state research and development tax credits of $7.9 million and $2.0 million, respectively. The federal research and development tax credits will begin to expire in 2032, while the state credits do not expire.

Additionally, the utilization of the net operating loss and research and development tax credit carryforwards is subject to an annual limitation under Section 382 of the Internal Revenue Code. Future ownership changes as determined under Section 382 could further limit the utilization of net operating loss carryforwards. Due to the existence of the valuation allowance, future changes in the deferred tax assets related to these tax attributes will not impact the Company's effective tax rate.

The Company is subject to federal income tax as well as income tax of multiple state jurisdictions. The Company is not currently under examination by the IRS or state and local tax authorities.

At December 31, 2019, the Company had unrecognized tax benefits of $2.5 million, determined as follows:

	December 31,	
	2018	2019
Balance at beginning of the year	$517	$ 755
Increase for current year positions	238	1,715
Increase for prior year positions	—	—
Balance at the end of year	$755	$2,470

These unrecognized tax benefits are not expected to change within the next twelve months. Of the $2.5 million of unrecognized tax benefits, zero would impact the effective tax rate due to the valuation allowance, if reversed. The Company recognizes interest and penalties related to uncertain tax positions as a component of income tax expense. As of December 31, 2019, there are no accrued interest or penalties.

During 2018, the Company dissolved its subsidiary in the Cayman Islands. There were no tax implications as a result of the dissolution.

Note 14—Employee Benefit Plan

In 2015, the Company adopted a defined contribution retirement savings plan under Section 401(k) of the Internal Revenue Code. This plan covers all employees who meet minimum age and service requirements and allows participants to defer a portion of their annual compensation on a pre-tax basis. Company contributions to the plan may be made at the discretion of the Board of Directors. Total contributions by the Company during the years ended December 31, 2018 and 2019 were $0.1 million and $0.3 million, respectively.

Poseida Therapeutics, Inc.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Note 15—Net Loss And Unaudited Pro Forma Net Loss Per Share

Net Loss Per Share

Basic and diluted net loss per share attributable to common stockholders was calculated as follows (in thousands, except share and per share amounts):

	Year Ended December 31,	
	2018	2019
Numerator:		
Net loss	$ (44,404)	$ (86,527)
Net loss attributable to common stockholders	$ (44,404)	$ (86,527)
Denominator:		
Weighted-average shares of common stock outstanding, basic and diluted	12,183,979	12,618,413
Net loss per share attributable to common stockholders, basic and diluted	$ (3.64)	$ (6.86)

The Company's potentially dilutive securities, which include Preferred Stock, warrants to purchase Preferred Stock and common stock options, have been excluded from the computation of diluted net loss per share as the effect would be to reduce the net loss per share. Therefore, the weighted-average number of shares of common stock outstanding used to calculate both basic and diluted net loss per share attributable to common stockholders is the same. The Company excluded the following potential common shares, presented based on amounts outstanding at each period end, from the computation of diluted net loss per share attributable to common stockholders for the periods indicated because including them would have had an anti-dilutive effect:

	Year Ended December 31,	
	2018	2019
Convertible preferred stock (as converted to common stock)	14,595,025	26,411,194
Warrants to purchase convertible preferred stock (as converted to common stock)	107,320	121,122
Stock options to purchase common stock	2,159,228	3,610,779
Total	16,861,573	30,143,095

Poseida Therapeutics, Inc.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)

Unaudited Pro Forma Net Loss Per Share

The unaudited pro forma basic and diluted net loss per share attributable to common stockholders, for the year ended December 31, 2019 has been prepared to give effect, upon a Qualified IPO, to the automatic conversion of the shares of all outstanding shares of Preferred Stock into common stock as if such conversion had occurred on the later of January 1, 2019 or the issuance date of the Preferred Stock (in thousands, except share and per share amounts):

	Year Ended December 31, 2019 (unaudited)
Numerator:	
Net loss attributable to common stockholders	$ (86,527)
Add:	
Change in fair value of preferred stock warrant liability	(519)
Pro forma net loss attributable to common stockholders	$ (87,046)
Denominator:	
Weighted-average shares of common stock outstanding, basic and diluted	12,618,480
Pro forma adjustment to reflect automatic conversion of convertible preferred stock into common stock upon the completion of the proposed IPO	23,311,581
Pro forma weighted-average shares of common stock outstanding, basic and diluted	35,930,061
Pro forma net loss per share attributable to common stockholders, basic and diluted	$ (2.41)

Note 16—Subsequent Events

For its consolidated financial statements as of December 31, 2019 and for the year then ended, the Company evaluated subsequent events through April 17, 2020, the date on which those financial statements were issued. The Company has also evaluated subsequent events through July 6, 2020, for the effects of the reverse stock split described in Note 1.

In January 2020, the Company received a $4.1 million milestone payment from CIRM related to is award to co-fund the Phase 1 clinical trial of P-BCMA-101.

In July 2020, the Company effected a 1-for-1.247 reverse stock split of its common stock. The par value and the authorized number of shares of the common stock were not adjusted as a result of the reverse stock split. The reverse stock split resulted in an adjustment to the conversion price of each series of the Preferred Stock to reflect a proportional decrease in the number of shares of common stock to be issued upon conversion. The accompanying consolidated financial statements and notes to the consolidated financial statements give retroactive effect to the reverse stock split for all periods presented.

Poseida Therapeutics, Inc.
CONDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited)
(In thousands, except share amounts)

	December 31, 2019	March 31, 2020	Pro Forma March 31, 2020
ASSETS			
Current assets:			
Cash and cash equivalents	$ 87,784	$ 63,272	$ 63,272
Short-term investments	37,534	40,107	40,107
Prepaid expenses and other current assets	1,861	5,218	5,218
Total current assets	127,179	108,597	108,597
Property and equipment, net	10,858	17,208	17,208
Operating lease right-of-use assets	—	21,282	21,282
Intangible assets, net	1,320	1,320	1,320
Goodwill	4,228	4,228	4,228
Other long-term assets	3,411	3,548	3,548
Deferred offering costs	—	118	118
Total assets	$ 146,996	$ 156,301	$ 156,301
LIABILITIES, CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT			
Current liabilities:			
Accounts payable	$ 4,929	$ 7,704	$ 7,704
Accrued and other liabilities	13,926	21,184	21,184
Operating lease liabilities, current	—	4,965	4,965
Term debt - short-term	3,000	6,000	6,000
Total current liabilities	21,855	39,853	39,853
Term debt - long-term	26,140	23,227	23,227
Deferred CIRM grant liability	19,592	23,756	23,756
Warrant liability	1,271	1,251	—
Deferred tax liability	55	55	55
Operating lease liability, non-current	—	21,518	21,518
Other long-term liabilities	5,421	849	849
Total liabilities	74,334	110,509	109,258
Commitments and contingencies *(Note 11)*			
Convertible preferred stock (Series A, A-1, B and C), $0.0001 par value 33,085,827 authorized at December 31, 2019 and March 31, 2020, respectively; 32,934,785 shares issued and outstanding at December 31, 2019 and March 31, 2020, respectively; liquidation preference of $222,173 at March 31, 2020; no shares issued and outstanding, pro forma	222,173	222,173	—
Stockholders' equity:			
Common stock, $0.0001 par value: 57,013,463 shares authorized at December 31, 2019 and March 31, 2020, respectively; 13,196,419 and 13,370,778 shares issued and outstanding at December 31, 2019 and March 31, 2020, respectively; 47,815,886 shares issued and outstanding, pro forma	2	2	5
Additional paid-in capital	2,689	4,381	227,802
Accumulated other comprehensive income	19	130	130
Accumulated deficit	(152,221)	(180,894)	(180,894)
Total stockholders' (deficit) equity	(149,511)	(176,381)	47,043
Total liabilities, convertible preferred stock and stockholders' (deficit) equity	$ 146,996	$ 156,301	$ 156,301

The accompanying notes are an integral part of these condensed consolidated financial statements.

Poseida Therapeutics, Inc.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(Unaudited)
(In thousands, except share and per share amounts)

	Three Months Ended March 31,	
	2019	2020
Operating expenses:		
Research and development	$ 8,613	$ 23,414
General and administrative	6,399	4,854
Decrease in contingent consideration (inclusive of related party amounts of $737 and zero, respectively)	(1,797)	—
Total operating expenses	13,215	28,268
Loss from operations	(13,215)	(28,268)
Other income (expense):		
Interest expense	(795)	(914)
Other income (expense), net	676	398
Net loss before income tax	(13,334)	(28,784)
Income tax benefit	—	—
Net loss	$ (13,334)	$ (28,784)
Other comprehensive income:		
Other comprehensive income (net of tax expense of $0.0 million for each of the periods ending March 31, 2019 and 2020)	$ —	$ 111
Total other comprehensive income	$ —	$ 111
Comprehensive loss	$ (13,334)	$ (28,673)
Net loss per share attributable to common stockholders, basic and diluted	$ (1.08)	$ (2.16)
Weighted-average shares of common stock, basic and diluted	12,290,621	13,322,581
Pro forma net loss per share attributable to common stockholders, basic and diluted		$ (0.72)
Pro forma weighted-average shares of common stock outstanding, basic and diluted		39,733,793

The accompanying notes are an integral part of these condensed consolidated financial statements.

Poseida Therapeutics, Inc.
CONDENSED CONSOLIDATED STATEMENTS OF CHANGES IN CONVERTIBLE PREFERRED STOCK AND STOCKHOLDERS' DEFICIT
(Unaudited)
(In thousands, except share amounts)

	Convertible preferred stock		Common Stock		Additional paid-in capital	Accumulated Other Comprehensive Income	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount				
Balance at January 1, 2019	18,200,011	$ 72,460	12,275,579	$ 2	(11,026)	$ —	$ (65,694)	$ (76,718)
Net loss	—	—	—	—	—	—	(13,334)	(13,334)
Issuance of common stock under employee stock compensation plans	—	—	16,594	—	18	—	—	18
Issuance of Series C preferred stock for cash net of issuance costs $146	8,457,758	85,954	—	—	—	—	—	—
Stock-based compensation expense	—	—	—	—	454	—	—	454
Balance at March 31, 2019	26,657,769	$158,414	12,292,173	$ 2	$ (10,554)	$ —	$ (79,027)	$ (89,580)
Balance at January 1, 2020	32,934,785	$222,173	13,196,419	$ 2	2,689	$ 19	$ (152,221)	$ (149,511)
Net loss	—	—	—	—	—	—	(28,784)	(28,784)
Transition adjustment from adoption of ASC 842 (Note 2)	—	—	—	—	—	—	111	111
Issuance of common stock under employee stock compensation plans	—	—	174,359	—	183	—	—	183
Stock-based compensation expense	—	—	—	—	1,509	—	—	1,509
Unrealized gain on marketable securities	—	—	—	—	—	111	—	111
Balance at March 31, 2020	32,934,785	$222,173	13,370,778	$ 2	$ 4,381	$ 130	$ (180,894)	$ (176,381)

The accompanying notes are an integral part of these condensed consolidated financial statements.

Poseida Therapeutics, Inc.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)
(In thousands)

	Three Months Ended March 31,	
	2019	2020
OPERATING ACTIVITIES		
Net loss	$ (13,334)	$ (28,784)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation & amortization expense	201	416
Stock-based compensation	454	1,509
Change in fair value of contingent liabilities	(1,797)	—
Change in preferred stock warrant liability	(537)	(20)
Accretion of discount on issued term debt	195	245
Write-off of deferred financing costs	567	—
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	(348)	(838)
Operating lease right-of-use assets	—	1,064
Other long-term assets	(1,000)	(137)
Accounts payable	(448)	(98)
Accrued liabilities	1,524	4,600
Operating lease liabilities	—	(841)
Other long-term liabilities	(140)	—
Net cash used in operating activities	(14,663)	(22,885)
INVESTING ACTIVITIES		
Purchases of property and equipment	(266)	(3,516)
Purchases of short-term investments	—	(19,957)
Proceeds from maturities of short-term investments	—	17,500
Net cash used in investing activities	(266)	(5,973)
FINANCING ACTIVITIES		
Net proceeds from stock option exercises	18	183
Issuance of Series C financing, net of issuance costs	85,954	—
Net proceeds from CIRM	—	4,163
Proceeds from term debt	10,000	—
Payment of debt issuance costs	(53)	—
Net cash provided by financing activities	95,919	4,346
Net increase (decrease) in cash and cash equivalents	80,990	(24,512)
Cash and cash equivalents at beginning of period	30,395	87,784
Cash and cash equivalents at end of period	$ 111,385	$ 63,272
Non-cash operating, investing and financing activities:		
Purchases of property and equipment included in accounts payable and accrued liabilities	$ 441	$ 5,413
Tenant improvement receivable from landlord	$ —	$ 312
Deferred offering costs incurred but not yet paid	$ —	$ 118
Supplemental disclosure of cash flow information:		
Interest paid	$ 470	$ 671

The accompanying notes are an integral part of these condensed consolidated financial statements.

Poseida Therapeutics, Inc.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(Unaudited)

NOTE 1—NATURE OF BUSINES AND BASIS OF PRESENTATION

Nature of Operations

Poseida Therapeutics, Inc. (the "Company" or "Poseida") is a clinical-stage biopharmaceutical company dedicated to utilizing its proprietary gene engineering platform technologies to create next generation cell and gene therapeutics with the capacity to cure.

The Company is subject to risks and uncertainties common to development-stage companies in the biotechnology industry, including, but not limited to, development by competitors of new technological innovations, dependence on key personnel, protection of proprietary technology, compliance with government regulations and the ability to secure additional capital to fund operations. Product candidates currently under development will require significant additional research and development efforts, including extensive preclinical and clinical testing and regulatory approval prior to commercialization. These efforts require significant amounts of additional capital, adequate personnel and infrastructure and extensive compliance-reporting capabilities. Even if the Company's therapeutic development efforts are successful, it is uncertain when, if ever, the Company will realize significant revenue from product sales.

Reverse Stock Split

These condensed consolidated financial statements reflect a 1-for-1.247 reverse stock split of the Company's common stock, which became effective on July 2, 2020. All share and per share data for all periods presented in the accompanying condensed consolidated financial statements and notes thereto have been adjusted retrospectively, where applicable, to reflect the reverse stock split.

Going Concern

These consolidated financial statements have been prepared assuming the Company will continue as a going concern, which assumes the realization of assets and the satisfaction of liabilities and commitments in the normal course of business.

In accordance with Accounting Standards Update ("ASU") 2014-15, *Presentation of Financial Statements–Going Concern (Subtopic 205-40): Disclosure of Uncertainties About an Entity's Ability to Continue as a Going Concern*, management is required to perform a two-step analysis over its ability to continue as a going concern. Management must first evaluate whether there are conditions and events that raise substantial doubt about the Company's ability to continue as a going concern (step 1). If management concludes that substantial doubt is raised, management is also required to consider whether its plans alleviate that doubt (step 2).

The Company has experienced net losses and negative cash flows from operations since its inception and has relied on its ability to fund its operations primarily through equity financings. The Company expects to continue to incur net losses for at least the next several years. As of March 31, 2020, the Company had an accumulated deficit of $180.9 million and cash, cash equivalents and short-term investments of $103.4 million. Management has prepared cash flow forecasts which indicate that based on the Company's expected operating losses and negative cash flows, there is substantial doubt about the Company's ability to continue as a going concern, within one year after the date that these condensed consolidated financial statements are issued.

The Company's ability to continue as a going concern is dependent upon its ability to raise additional funding. The Company is seeking to complete an initial public offering ("IPO") of its common stock. In the event the Company does not complete an IPO, the Company expects to seek additional funding through private equity

financings and/or strategic collaborations. If the Company is unable to obtain adequate financing, it could be forced to delay, reduce or eliminate its research and development programs or other operations. If any of these events occur, the Company's ability to achieve its development and commercialization goals would be adversely affected. The Company does not have any additional financing in place and there can be no assurance that the Company can obtain financing, if at all, on terms acceptable to it.

Basis of Preparation and Consolidation

The accompanying condensed consolidated financial statements reflect the Company's financial position, results of operations and cash flows, in conformity with generally accepted accounting principles in the United States ("GAAP") and include the accounts of Poseida Therapeutics, Inc. and its wholly owned subsidiaries. All intercompany transactions and balances have been eliminated.

NOTE 2—SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The Company's significant accounting policies are disclosed in the audited consolidated financial statements for the years ended December 31, 2018 and 2019, included elsewhere in this prospectus. Since the date of those financial statements, there have been no changes to its significant accounting policies except as noted below.

Unaudited Interim Financial Information

The interim condensed consolidated balance sheet as of March 31, 2020, the condensed consolidated statements of operations and comprehensive loss and of cash flows for the three months ended March 31, 2019 and 2020, and statements of changes in convertible preferred stock and stockholders' deficit for the three months ended March 31, 2019 and 2020 are unaudited. In the opinion of management, the unaudited data reflects all adjustments, which include only normal recurring adjustments necessary for the fair statement of the Company's financial position as of March 31, 2020 and the results of its operations and comprehensive loss and its cash flows for the three months ended March 31, 2019 and 2020. The financial data and other information disclosed in these notes related to the three months ended March 31, 2019 and 2020 are also unaudited. The results for the three months ended March 31, 2020 are not necessarily indicative of results to be expected for the year ending December 31, 2020, any other interim periods, or any future year or period. These condensed consolidated financial statements should be read in conjunction with the Company's audited financial statements as of and for the year ended December 31, 2019 and the notes thereto, included elsewhere in this prospectus.

Unaudited Pro Forma Information

Upon (i) the closing of an IPO of the Company's common stock at a per share price to the public of at least $15.67, as adjusted for any stock dividends, combinations, splits, and recapitalizations, and resulting in gross proceeds to the Company of at least $100.0 million ("Qualified IPO"), or (ii) the affirmative vote by holders of at least (A) a majority of the then-outstanding Preferred Stock and (B) 35% of the outstanding shares of Series C Preferred Stock (as defined below), all currently outstanding shares of convertible preferred stock will automatically convert into shares of common stock. The unaudited pro forma information does not assume any proceeds from the planned IPO.

The accompanying unaudited pro forma balance sheet as of March 31, 2020 has been prepared to give effect to the automatic conversion of all of the outstanding convertible preferred stock of the Company, including the issuance of an aggregate of 10,018,300 shares of Series D Preferred Stock in June 2020 as well as the

Poseida Therapeutics, Inc.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(Unaudited)

conversion of these shares into 8,033,914 shares of common stock of the Company in connection with the closing of the Company's IPO, the automatic conversion of warrants to purchase convertible preferred stock for warrants to purchase 121,122 shares of common stock and the reclassification of the warrant liability of $1.3 million to additional paid-in capital.

Pro forma basic and diluted net loss per share has been computed to give effect to the conversion of the shares of the Company's convertible preferred stock into common stock as if such conversion had occurred at the later of the beginning of the period or the date of original issuance. The pro forma net loss per share does not include the shares of common stock expected to be sold and related proceeds to be received from an IPO.

Leases

The Company accounts for leases in accordance with Accounting Standards Codification Topic 842, *Leases*, ("ASC 842"). The Company determines if an arrangement is a lease at contract inception. A lease exists when a contract conveys the right to control the use of identified property, plant, or equipment for a period of time in exchange for consideration. The definition of a lease embodies two conditions: (1) there is an identified asset in the contract that is land or a depreciable asset (i.e., property, plant, and equipment), and (2) the Company has the right to control the use of the identified asset.

Operating leases where the Company is the lessee are included in lease receivables, operating lease right-of-use ("ROU") assets, operating lease liabilities, current and operating lease liabilities, non-current on its condensed consolidated balance sheets. The lease liabilities are initially and subsequently measured at the present value of the unpaid lease payments at the lease commencement date.

Lease receivables, included within prepaid and other currents assets within the condensed consolidated balance sheets, are comprised of the expected tenant improvement reimbursement from the landlord and the rent abatement period to be recognized over the following twelve months.

ASC 842 requires a lessee to discount its unpaid lease payments using the interest rate implicit in the lease or, if that rate cannot be readily determined, its incremental borrowing rate. The rates implicit in the Company's leases are not known, therefore, the incremental borrowing rate is used based on the information available at commencement date in determining the present value of lease payments. The Company's incremental borrowing rate for a lease is the rate of interest it would have to pay on a collateralized basis to borrow an amount equal to the lease payments under similar terms.

The lease term for all of the Company's leases includes the noncancellable period of the lease. When applicable, the Company's lease term is impacted by options to extend or terminate the lease when it is reasonably certain that it will exercise such option Lease payments included in the measurement of the lease asset or liability are comprised of its fixed payments.

The Company has elected not to recognize ROU assets and lease liabilities for all short-term leases that have a lease term of 12 months or less. The Company recognizes the lease payments associated with its short-term leases as an expense on a straight-line basis over the lease term. There are no variable lease payments associated with these leases. Additionally, the Company has elected to account for the lease and non-lease components together as a single lease component for its real estate asset class.

Risk and Uncertainties

In December 2019, COVID-19, a novel strain of coronavirus, was first reported in Wuhan, China and has since become a global pandemic. The virus continues to spread globally, has been declared a pandemic by

Poseida Therapeutics, Inc.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(Unaudited)

the World Health Organization and has spread to over 100 countries, including the United States. The impact of this pandemic has been and will likely continue to be extensive in many aspects of society, which has resulted in and will likely continue to result in significant disruptions to the global economy, as well as businesses and capital markets around the world.

Potential impacts to the Company's business include, but are not limited to, temporary closures of its facilities or those of its vendors, disruptions or restrictions on its employees' ability to travel, disruptions to or delays in ongoing laboratory experiments, preclinical studies, clinical trials, third-party manufacturing supply and other operations, the potential diversion of healthcare resources away from the conduct of clinical trials to focus on pandemic concerns, interruptions or delays in the operations of the U.S. Food and Drug Administration or other regulatory authorities, and the Company's ability to raise capital and conduct business development activities.

Recently Adopted Accounting Pronouncements

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*. The FASB subsequently issued ASU 2018-10 *Codification Improvements to Topic 842, Leases*, ASU 2018-11, *Leases (Topic 842): Targeted Improvements*, and ASU 2019-01, *Leases (Topic 842): Codification Improvements*, to further amend ASU 2016-02. ASU 2016-02, as amended, provides revised guidance related to the accounting and reporting of leases, including a requirement for lessees to recognize most leases on the balance sheet. The recognition, measurement and presentation of expenses and cash flows arising from a lease by a lessee depends on its classification as a finance or operating lease. For public entities, the guidance is effective for fiscal years beginning after December 15, 2018, and for non-public entities, the guidance was effective for fiscal years beginning after December 15, 2020, with early adoption permitted. Companies may adopt retrospectively as of the earliest period presented or retrospectively at the beginning of the period of adoption through a cumulative-effect adjustment, in each case with a number of practical expedients that entities may elect to apply. The Company adopted this standard on January 1, 2020, early adopting ASC 842 using a modified retrospective transition approach as of the effective date, as permitted by the amendments in ASU 2018-11, which provides an alternative modified retrospective transition method. As a result, the Company was not required to adjust its comparative period financial information for effects of the standard or make the new required lease disclosures for periods before the date of adoption. The Company has elected to adopt the package of transition practical expedients and, therefore, it has not reassessed (1) whether existing or expired contracts contain a lease, (2) lease classification for existing or expired leases or (3) the accounting for initial direct costs that were previously capitalized. The Company did not elect the practical expedient to use hindsight for leases existing at the adoption date. See Note 11 for the adoption impact.

In August 2018, the FASB issued ASU 2018-15, *Intangibles—Goodwill and Other—Internal-Use Software (Topic 350): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract*. This standard requires capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). The Company adopted this standard on January 1, 2020 using the prospective method. The adoption of this standard did not have a material impact on our consolidated financial statements and disclosures.

In August 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement*. The new standard removes certain disclosures, modifies certain disclosures and adds additional disclosures related to fair value measurement. The Company adopted this standard on January 1, 2020 using the prospective method. The adoption of this standard did not have a material impact on our consolidated financial statements and disclosures.

Poseida Therapeutics, Inc.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(Unaudited)

Recently Issued Accounting Pronouncements

In December 2019, the FASB issued ASU 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes* ("ASU 2019-12"), which is intended to simplify the accounting for income taxes. ASU 2019-12 removes certain exceptions to the general principles in Topic 740 and also clarifies and amends existing guidance to improve consistent application. The new standard will be effective beginning January 1, 2021. The Company is currently evaluating the potential impact ASU 2019-12 may have on its financial position and results of operations upon adoption.

NOTE 3—COMPOSITION OF CERTAIN BALANCE SHEET COMPONENTS

Property and equipment, net

Property and equipment, net consist of the following as of (in thousands):

	December 31, 2019	March 31, 2020
Lab equipment	$ 6,957	$ 7,945
Leasehold improvements	165	167
Computer equipment and software	456	581
Furniture and fixtures	560	561
Construction in progress	4,729	10,379
Total property and equipment	12,867	19,633
Less: Accumulated depreciation and amortization	(2,009)	(2,425)
Total property and equipment, net	$ 10,858	$ 17,208

Depreciation expense associated with property and equipment was $0.2 million and $0.4 million for the three months ended March 31, 2019 and 2020, respectively.

Accrued and other liabilities

Accrued and other liabilities consist of the following as of (in thousands):

	December 31, 2019	March 31, 2020
Contract research services	$ 7,993	$ 13,897
Payroll and related expense	3,283	1,873
Lease cancellation fee	979	993
Other	1,671	4,421
Total accrued and other liabilities	$ 13,926	$ 21,184

Poseida Therapeutics, Inc.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(Unaudited)

NOTE 4—FINANCIAL INSTRUMENTS

The following table summarizes the amortized cost and fair value of securities available-for-sale at December 31, 2019 and March 31, 2020 (in thousands):

	Amortized Cost/Cost	Unrealized Gains	Unrealized Losses	Fair Value
At December 31, 2019:				
Money market fund	$ 63,744	$ —	$ —	$ 63,744
U.S. government agency securities and treasuries	42,503	19	—	42,522
Total	$106,247	$ 19	$ —	$106,266
At March 31, 2020:				
Money market fund	$ 41,701	$ —	$ —	$ 41,701
U.S. government agency securities and treasuries	39,977	130	—	40,107
Total	$ 81,678	$ 130	$ —	$ 81,808

No available-for-sale debt securities held as of December 31, 2019 and March 31, 2020 had remaining maturities greater than one year.

NOTE 5—FAIR VALUE MEASUREMENT

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants as of the measurement date. Applicable accounting guidance provides an established hierarchy for inputs used in measuring fair value that maximizes the use of observable inputs and minimizes the use of unobservable inputs by requiring that the most observable inputs be used when available. Observable inputs are inputs that market participants would use in valuing the asset or liability and are developed based on market data obtained from sources independent of the Company. Unobservable inputs are inputs that reflect the Company's assumptions about the factors that market participants would use in valuing the asset or liability. There are three levels of inputs that may be used to measure fair value:

- Level 1: Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities
- Level 2: Significant other observable inputs other than Level 1 prices such as quoted prices in markets that are not active, or inputs that are observable, either directly or indirectly, for substantially the full term of the asset or liability
- Level 3: Prices or valuation techniques that require inputs that are both significant to the fair value measurement and unobservable (i.e., supported by little or no market activity)

Poseida Therapeutics, Inc.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(Unaudited)

The Company has classified assets and liabilities measured at fair value on a recurring basis as follows (in thousands):

	Level 1	Level 2	Level 3
At December 31, 2019:			
Assets			
Cash equivalents	$ 68,732	$ —	$ —
Short-term investments	37,534	—	—
Total assets	$ 106,266	$ —	$ —
Liabilities			
Warrant liability	$ —	$ —	$ 1,271
Total liabilities	$ —	$ —	$ 1,271
At March 31, 2020:			
Assets			
Cash equivalents	$ 41,701	$ —	$ —
Short-term investments	40,107	—	—
Total assets	$ 81,808	$ —	$ —
Liabilities			
Warrant liability	$ —	$ —	$ 1,251
Total liabilities	$ —	$ —	$ 1,251

The preferred stock warrant liability in the table above consisted of the fair value of warrants to purchase Series A-1 convertible preferred stock (“Series A-1 Preferred Stock”) and Series B convertible preferred stock (“Series B Preferred Stock”) and was based on significant inputs not observable in the market, which represent a Level 3 measurement within the fair value hierarchy. The Company’s valuation of the preferred stock warrants utilized the Black-Scholes option-pricing model, which incorporates assumptions and estimates to value the preferred stock warrants.

The quantitative elements associated with the Company’s Level 3 inputs impacting the fair value measurement of the preferred stock warrant liability include the fair value per share of the underlying Series A-1 Preferred Stock and Series B Preferred Stock, the remaining contractual term of the warrants, risk-free interest rate, expected dividend yield and expected volatility of the price of the underlying preferred stock. The most significant assumption in the Black-Scholes option-pricing model impacting the fair value of the preferred stock warrants is the fair value of the Company’s convertible preferred stock as of each remeasurement date. The Company determines the fair value per share of the underlying preferred stock by taking into consideration its most recent sales of its convertible preferred stock as well as additional factors that the Company deems relevant. As of December 31, 2019 and March 31, 2020, the fair value per share of the Series A-1 Preferred Stock was $10.36 and $10.20, respectively. As of December 31, 2019 and March 31, 2020, the fair value per share of the Series B Preferred Stock was $10.57 and $10.42, respectively. The Company is a private company and lacks company-specific historical and implied volatility information of its stock. Therefore, it estimates its expected stock volatility based on the historical volatility of publicly traded peer companies for a term equal to the remaining contractual term of the warrants. The risk-free interest rate is determined by reference to the U.S. Treasury yield curve for time periods approximately equal to the remaining contractual term of the warrants. The Company has estimated a 0% dividend yield based on the expected dividend yield and the fact that the Company has never paid or declared dividends. The change in fair value of warrant liability was a gain of $0.5 million and

of twenty thousand, for the three months ended March 31, 2019 and 2020, respectively, included with other income (expense) within the consolidated condensed statement of operations and comprehensive loss.

A reconciliation of the level 3 liabilities is as follows (in thousands):

Fair value of Level 3 liabilities as of December 31, 2019	$1,271
Change in fair value of warrant liability	(20)
Fair value of Level 3 liabilities as of March 31, 2020	$1,251

NOTE 6—CALIFORNIA INSTITUTE OF REGENERATIVE MEDICINE AWARDS

The Company has been awarded funding from California Institute of Regenerative Medicine ("CIRM") to develop internal programs. Under the terms of the funding both CIRM and the Company will co-fund a specified program, under which funding is paid in developmental milestones determined as a part of the award. The Company is obligated to share future revenue for the related program with CIRM. The percentage of revenue is dependent on the amount of the award received and whether revenue is from product sales or license fees. The maximum revenue sharing amount the Company may be required to pay to CIRM is equal to nine times the total amount awarded and paid to the Company. The Company has the option to decline any and all amounts awarded by CIRM. As an alternative to revenue sharing, the Company has the option to convert the award to a loan, which such option the Company must exercise on or before ten (10) business days after the FDA notifies the Company that it has accepted the Company's application for marketing authorization. In the event the Company exercises its right to convert the award to a loan, it would be obligated to repay the loan within ten (10) business days of making such election. Repayment amounts vary dependent on when the award is converted to a loan, ranging from 60% of the award granted to amounts received plus interest at the rate of the three-month LIBOR rate plus 10% per annum. Since the Company may be required to repay some or all of the amounts awarded by CIRM, the Company accounted for this award as a liability rather than revenue as the Company's current intent is to convert the award into a loan. Given the uncertainty in amounts due upon repayment, the Company has recorded amounts received without any discount or interest recorded, upon determination of amounts that would become due, the Company will adjust accordingly.

In December 2017, the Company was granted an award in the amount of $19.8 million from CIRM to support the Company's P-BCMA-101 Phase 1 clinical trial. The award is paid based on developmental milestones, of which $19.7 million has been received as of March 31, 2020 with up to an aggregate of $0.1 million in future milestone payments.

In September 2018, the Company was granted an award in the amount of $4.0 million from CIRM to support the Company's preclinical studies for P-PSMA-101 program. The award is paid based on developmental milestones, of which the full $4.0 million has been received as of March 31, 2020.

NOTE 7—TERM DEBT

On July 25, 2017, the Company entered into a loan and security agreement (the "Original Loan Agreement") with Oxford Finance LLC ("Oxford"), whereby it borrowed $10.0 million (the "Original Term A Loan"). Balances under the Original Loan were due in monthly principal and interest payments, with a final maturity date of August 2021. The Initial Loan included a final payment fee of 8.50% of the original principal amount due upon maturity.

Poseida Therapeutics, Inc.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS—(Continued)
(Unaudited)

In August 2018, the Company entered into an Amended and Restated Loan and Security Agreement ("Amended Loan Agreement") with Oxford, pursuant to which Oxford agreed to lend the Company up to $30.0 million, issuable in three separate term loans of the Original Term A Loan, $10.0 million ("New A Term Loan"), and $10.0 million ("Term B Loan"), collectively referred to as the "Term Loans"). The Company received $10.0 million in proceeds from the New Term A Loan, net of debt issuance costs and accrued interest of $0.9 million. Under the terms of the Amended Loan Agreement the Company was permitted, at its sole discretion, to borrow $10.0 million under the Term B Loan following the achievement of a defined milestone event until the earlier of 60 days thereafter or December 20, 2018. In January 2019, the Company entered into an amendment with Oxford to extend the draw period of the Term B Loan through February 15, 2019. The Company drew the remaining $10.0 million in February 2019.

The Company evaluated the amendment in accordance with ASC Topic 470 *Debt*, which requires the assessment of whether the modification was considered a substantial modification, in which case the modification would be accounted for as a debt extinguishment. Based on the Company's evaluation, the modification was not considered substantial and as such treated as a debt modification.

All outstanding Term Loans will mature on March 1, 2023 (the "Maturity Date") and will have interest-only payments through October 1, 2020, followed by 30 equal monthly payments of principal and unpaid accrued interest. The Original Term A Loan and New Term A Loan (collectively "Term A Loan") will bear interest at a floating per annum rate equal to (i) 6.96% plus (ii) the greater of (a) the 30-day U.S. Dollar LIBOR rate reported in The Wall Street Journal on the last business day of the month that immediately precedes the month in which the interest will accrue and (b) 0.99%. The interest rate for Term A as of March 31, 2020 was 8.7%. The Term B Loan will bear interest at a floating per annum rate equal to (i) 6.94% for Term B plus (ii) the greater of (a) the 30-day U.S. Dollar LIBOR rate reported in The Wall Street Journal on the last business day of the month that immediately precedes the month in which the interest will accrue and (b) 2.0%. The interest rate for Term B as of March 31, 2020 was 8.94%. The Company will be required to make a final payment of 7.5% of the principal balance outstanding, payable on the earlier of (i) the Maturity Date, (ii) acceleration of any Term Loan, or (iii) the prepayment of the Term Loans.

There is an option to prepay all, but not less than all, of the borrowed amounts, provided that the Company will be obligated to pay a prepayment fee equal to (i) 3.0% of the outstanding principal balance of the applicable Term Loan if prepayment is made after the funding date through and including the first anniversary of the funding date (ii) 2.0% of the outstanding balance after the first anniversary through and including the second anniversary of the funding date of the Term Loan or (iii) 1.0% of the applicable Term Loan prepaid after the second anniversary of the funding date and prior to the Maturity Date.

The Company may use the proceeds from the Term Loans solely for working capital and to fund its general business requirements. The Company's obligations under the Loan Agreement are secured by a first priority security interest in substantially all of its current and future assets, other than our intellectual property. In addition, the Company has also agreed not to encumber its intellectual property assets, except as permitted by the Loan Agreement. While any amounts are outstanding under the Loan Agreement, the Company is subject to a number of affirmative and restrictive covenants, including covenants regarding dispositions of property, business combinations or acquisitions, among other customary covenants. The Company is also restricted from paying dividends or making other distributions or payments on its capital stock in excess of $0.3 million, on an annual basis, subject to limited exceptions. As of March 31, 2020, the Company was in compliance with all covenants under the Loan Agreement.

Pursuant to the Original Loan Agreement, on July 25, 2017, the Company issued to Oxford warrants to purchase an aggregate of up to 116,618 shares of the Company's Series A-1 Preferred Stock ("Series A-1

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Warrants") at an exercise price of $3.43 per share. The warrants were immediately exercisable and will expire ten years from the date of the grant. The Company determined the fair value of the Series A-1 Warrants on the date of issuance was $0.3 million using the Black-Scholes pricing model utilizing the following inputs: risk-free interest rate—2.3%, volatility—77.8%, dividend yield—0% and expected life in years—10.

Pursuant to the Amended Loan Agreement, on August 13, 2018, the Company issued to Oxford warrants to purchase an aggregate of up to 17,212 shares of the Company's Series B Preferred Stock with an exercise price of $5.81 per share ("August 2018 Series B Warrants"). On February 19, 2019, in conjunction with drawing the remaining $10.0 million in principal, the Company issued to Oxford warrants to purchase an aggregate of up to an additional 17,212 shares of the Company's Series B Preferred Stock, with an exercise price of $5.81 per share ("February 2019 Series B Warrants"). The August 2018 Series B Warrants and February 2019 Series B Warrants (collectively "Series B Warrants") were immediately exercisable upon issuance and will expire ten years from the date of the grant. The Company determined the fair value of the August 2018 Series B Warrants on the date of issuance was $0.1 million using the Black-Scholes pricing model utilizing the following inputs: risk-free interest rate—2.9%, volatility—75%, dividend yield—0% and expected life in years—10. The Company determined the fair value of the February 2019 Series B Warrants on the date of issuance was $0.2 million using the Black-Scholes pricing model utilizing the following inputs: risk-free interest rate—2.7%, volatility—77%, dividend yield—0% and expected life in years—10.

The fair value of the warrants was treated as a debt discount and as a preferred stock warrant liability. The debt discount is amortized over the term of the loan to interest expense.

As of March 31, 2020, there was $20.0 million outstanding under the Term A Loan. The Term A Loan was recorded at its initial carrying value of $20.0 million. In connection with the Term A Loan, the debt issuance costs of $1.0 million have been recorded as a debt discount, including the remaining unrecognized discount from the Original Term A Loan, on the Company's consolidated balance sheets, which are being accreted to interest expense over the life of the Term A Loan. Interest on the term loan, consisting of the stated interest rate, final payment fee and amortization of the discount, is being recognized under the effective interest method using a rate of 12.38%.

As of March 31, 2020, there was $10.0 million outstanding under the Term B Loan. The Term B Loan was recorded at its initial carrying value of $10.0 million. In connection with the Term B Loan, the debt issuance costs of $0.3 million have been recorded as a debt discount, on the Company's consolidated balance sheets, which are being accreted to interest expense over the life of the Term B Loan. Interest on the term loan, consisting of the stated interest rate, final payment fee and amortization of the discount, is being recognized under the effective interest method using a rate of 12.07%.

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NOTE 8—CONVERTIBLE PREFERRED STOCK

As of each balance sheet date, the Preferred Stock consisted of the following (in thousands, except share amounts):

	December 31, 2019 and March 31, 2020 (unaudited)				
	Preferred Stock Authorized	Preferred Stock Issued and Outstanding	Carrying Value	Liquidation Preference	Common Stock Issuable Upon Conversion
Series A Preferred Stock	9,696,798	9,696,798	$ 31,063	$ 31,063	7,776,095
Series A-1 Preferred Stock	3,370,263	3,253,645	11,083	11,083	2,609,176
Series B Preferred Stock	5,283,992	5,249,568	30,314	30,314	4,209,754
Series C Preferred Stock	14,734,774	14,734,774	149,713	149,713	11,816,169
Total	33,085,827	32,934,785	$ 222,173	$ 222,173	26,411,194

The Series A Preferred Stock, Series A-1 Preferred Stock, Series B Preferred Stock and Series C Preferred Stock are collectively referred to as the “Preferred Stock.”

The rights, preferences and privileges of the Preferred Stock are as follows:

Dividends

The holders of the outstanding shares of Preferred Stock are entitled to receive dividends, when and if declared by the Board of Directors. Such dividends are payable in preference to any dividends for common stock declared by the Board of Directors. As of March 31, 2020, no dividends have been declared.

Conversion

Each share of Preferred Stock is convertible at any time, at the option of the holder, into an equal number of fully paid shares of common stock. The conversion price is subject to adjustment for recapitalization (i.e. stock dividend, stock split, combination of shares, reorganization, recapitalization, reclassification or other similar event).

Each share of convertible Preferred Stock automatically converts into common stock at the effective conversion rate upon the closing of a Qualified IPO, or upon the affirmative vote by holders of at least (i) a majority of the then-outstanding Preferred Stock and (ii) 35% of the outstanding shares of Series C Preferred Stock.

Liquidation

In the event of any voluntary or involuntary liquidation, dissolution or winding-up of the Company or Deemed Liquidation Event (as described below), the holders of the Preferred Stock shall be entitled to receive, prior and in preference to any distribution of any of the assets of the Company to the holders of the common stock an amount equal to the greater of (i) the applicable Preferred Stock original issue price, plus any dividend declared but unpaid, or (ii) the amount per share that would have been payable had all shares of Preferred Stock been converted into common stock immediately prior to such Deemed Liquidation Event.

Unless the holders of the majority of the then-outstanding shares of Preferred Stock, voting together as a single class on an as-converted basis, elect otherwise, a Deemed Liquidation Event shall include a merger or

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consolidation (other than one in which stockholders of the Company own a majority by voting power of the outstanding shares of the surviving or acquiring corporation) or a sale, lease, transfer, exclusive license or other disposition of all or substantially all of the assets of the Company.

If upon the liquidation, dissolution or winding up of the Company, the assets of the Company legally available for distribution to the holders of the Preferred Stock are insufficient to permit the payment to such holders of the full amounts, then the entire assets of the corporation legally available for distribution shall be distributed with equal priority and pro rata among the holders of the Preferred Stock in proportion to the full amounts they would otherwise be entitled to receive.

After the payment or setting aside for payment to the holders of Preferred Stock of the full amounts specified above, the entire remaining assets of the Company legally available for distribution shall be distributed with equal priority and pro rata among the holders of the Preferred Stock and common stock.

As the Company's amended and restated certificate of incorporation contains a provision that upon a change of control of the Company the Preferred Stock is redeemable at the holder's option, the Preferred Stock have been classified outside of stockholders' deficit in the Company's consolidated balance sheets.

Voting

The holder of each share of Preferred Stock is entitled to the number of votes equal to the number of shares of common stock into which such holder's shares of Preferred Stock can be converted.

NOTE 9—COMMON STOCK

The Company's amended and restated certificate of incorporation authorizes the Company to issue 45,720,499 shares of $0.0001 par value common stock. Each share of common stock is entitled to one vote. The holders of common stock are also entitled to receive dividends whenever funds are legally available and when declared by the Board of Directors, subject to the prior rights of holders of all classes of Preferred Stock outstanding. Since the Company's inception, there have been no dividends declared.

NOTE 10—STOCK OPTION PLAN

Following is a summary of the Company's stock option plan activity and related information for the three months ended March 31, 2020:

	Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (Years)	Intrinsic Value (thousands)
Balance at January 1, 2020	3,611,030	$ 8.58	8.65	
Options Granted	447,071	12.25		
Exercised	(174,359)	1.05		
Cancelled	(30,519)	4.37		
Balance at March 31, 2020	3,853,223	$ 9.38	8.71	$ 11,500
Options Vested & Expected to Vest as of March 31, 2020	3,853,223	$ 9.38	8.71	$ 11,500
Options Exercisable as of March 31, 2020	1,181,412	$ 4.87	7.26	$ 8,438

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The aggregate intrinsic value of options exercised during the three months ended March 31, 2019 and 2020 was $0.3 million and $2.0 million, respectively, determined as of the date of exercise. The Company received eighteen thousand and $0.2 million in cash from options exercised during three months ended March 31, 2019 and 2020, respectively.

The Company recorded stock-based compensation expense in the following expense categories of its consolidated statements of operations (in thousands):

	Three Months Ended March 31,	
	2019	2020
Research and development	$ 262	$ 823
General and administrative	192	686
Total stock-based compensation	$ 454	$ 1,509

As of March 31, 2020, total unrecognized compensation cost related to stock options was $19.9 million, and the weighted-average period over which this cost is expected to be recognized is approximately 3.4 years.

The assumptions that the Company used to determine the fair value of options granted to employees, non-employees and directors were as follows:

	Three months ended March 31,	
	2019	2020
Risk-free interest rate	2.58%	0.69%-1.37%
Expected volatility	82%	79%
Expected term (years)	6	6
Dividend Yield	—	—

NOTE 11—COMMITMENTS AND CONTINGENCIES

Operating Leases

As of March 31, 2020, the Company had operating leases for manufacturing, laboratory and office space in San Diego, California consisting of approximately 68,000 square feet with remaining lease terms of 117 months. Additionally, the Company had operating leases for dedicated manufacturing suites at its contract manufacturers with remaining lease terms of up to 15 months.

Laboratory and Office Space Leases

On January 1, 2020, on the adoption of ASC 842, the Company recognized initial lease receivables of $2.7 million, ROU lease assets of $22.3 million, which was adjusted for the deferred rent balance of $2.3 million and an initial lease liability of $27.3 million, with respect to the existing leases. The option to extend its leases in San Diego was not recognized as part of the lease liability and ROU lease assets. Under ASC 840, the Company had been the deemed owner under construction of the manufacturing facility. Upon the adoption of ASC 842 the Company derecognized the amounts previously presented on its balance sheet related to its manufacturing facility including construction in progress of $2.1 million within property and equipment, and the construction financing obligation of $2.5 million recorded within other long-term liabilities and $0.3 million of other receivables within prepaid and other current assets as of December 31, 2019. The Company also recorded a cumulative adjustment to the opening balance of accumulated deficit of $0.1 million. See below for additional details for the manufacturing facility.

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During the three months ended March 31, 2020 and 2019, the Company recognized $1.5 million and $0.2 million, respectively of operating lease expense. During the three months ended March 31, 2020, the Company paid $0.8 million for its operating leases. As of March 31, 2020, the weighted average remaining lease term and weighted-average discount rate for operating leases were 8.6 years and 8.9%, respectively.

Manufacturing Facility

In July 2019, the Company entered into a lease agreement for a facility in San Diego, California to be retrofitted to Good Manufacturing Practice standards and plans to use the facility for manufacturing in its early stage clinical trials. Prior to the adoption of ASC 842 the Company was deemed for accounting purposes to be the owner of the building during the construction period. As a result, at December 31, 2019, the Company maintained on its balance sheet, construction in progress of $2.1 million within property and equipment, net, as it relates to the fair value of the building, with the respective construction financing obligation recorded within other long-term liabilities.

Upon adoption of ASC 842, the Company determined the lease would be accounted for as an operating lease. Further, upon adoption of ASC 842, the Company determined it was the owner of the tenant improvements but did not control the construction project and therefore the fair value of the building was derecognized and costs incurred by the Company related to the tenant improvements of $9.3 million were recorded as leasehold improvements in property and equipment, net on the consolidated balance sheet as of March 31, 2020 and will be depreciated over the remaining lease term once the improvements are finalized.

As of March 31, 2020, maturities of lease liabilities were as follows (in thousands):

Year ending December 31,:	
2020 (remaining 9 months)	$ 3,936
2021	3,786
2022	3,502
2023	3,607
2024	3,715
Thereafter	20,314
Total lease payments	38,860
Imputed interest	(12,377)
Total lease liability balance	$ 26,483

Lease Agreement not Commenced as of March 31, 2020

In October 2019, the Company entered into an amended lease agreement for additional space in its current location in San Diego, California to be used for research and development and administrative activities. The amendment was evaluated and determined to be treated as a standalone lease. The lease term is expected to commence in June 2020 and expire on December 31, 2029. Future payments under the lease agreement are approximately $7.9 million.

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Prior to adoption of ASC 842, future minimum lease payments under non-cancelable operating lease agreements as of December 31, 2019, which were undiscounted and excluded non-lease components, were as follows (in thousands):

Year ending December 31,	
2020	$ 2,662
2021	3,954
2022	4,259
2023	4,377
2024	4,505
Thereafter	24,638
Total future minimum lease payments	$ 44,395

Indemnification Agreements

In the ordinary course of business, the Company may provide indemnification of varying scope and terms to vendors, lessors, contract research organizations, business partners and other parties with respect to certain matters including, but not limited to, losses arising out of breach of such agreements or from intellectual property infringement claims made by third parties. In addition, the Company has entered into indemnification agreements with members of its board of directors and certain of its executive officers that will require the Company, among other things, to indemnify them against certain liabilities that may arise by reason of their status or service as directors or officers. The maximum potential amount of future payments the Company could be required to make under these indemnification agreements is, in many cases, unlimited. The Company has not incurred any material costs as a result of such indemnifications and is not currently aware of any indemnification claims.

Legal Contingencies

In the ordinary course of business, the Company may face claims brought by third parties against the Company. The Company does not believe that there is any litigation, asserted or unasserted claim pending that could, individually or in the aggregate, have a material adverse effect on the Company's results of operations or financial condition.

NOTE 12—NET LOSS AND PRO FORMA NET LOSS PER SHARE

Net Loss Per Share

Basic and diluted net loss per share attributable to common stockholders was calculated as follows (in thousands, except share and per share amounts):

	Three Months Ended March 31,	
	2019	2020
Numerator:		
Net loss	$ (13,334)	$ (28,784)
Net loss attributable to common stockholders	$ (13,334)	$ (28,784)
Denominator:		
Weighted-average common stock outstanding, basic and diluted	12,290,621	12,322,581
Net loss per share attributable to common stockholders, basic and diluted	$ (1.08)	$ (2.16)

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The Company's potentially dilutive securities, which include Preferred Stock, warrants to purchase Preferred Stock and common stock options, have been excluded from the computation of diluted net loss per share as the effect would be to reduce the net loss per share. Therefore, the weighted-average number of shares of common stock outstanding used to calculate both basic and diluted net loss per share attributable to common stockholders is the same. The Company excluded the following potential common shares, presented based on amounts outstanding at each period end, from the computation of diluted net loss per share attributable to common stockholders for the periods indicated because including them would have had an anti-dilutive effect:

	Three Months Ended March 31,	
	2019	2020
Convertible preferred stock (as converted to common stock)	21,377,499	26,411,194
Warrants to purchase convertible preferred stock (as converted to common stock)	121,122	121,122
Stock options to purchase common stock	2,204,229	3,853,223
	23,702,850	30,385,539

Pro Forma Net Loss Per Share

The unaudited pro forma basic and diluted net loss per share attributable to common stockholders, for the three months ended March 31, 2020 has been prepared to give effect, upon a Qualified IPO, to the automatic conversion of the shares of all outstanding shares of Preferred Stock into common stock as if such conversion had occurred on the later of January 1, 2020 or the issuance date of the Preferred Stock (in thousands, except share and per share amounts):

	Three Months Ended March 31, 2020
Numerator:	
Net loss attributable to common stockholders	$ (28,784)
Add:	
Change in fair value of preferred stock warrant liability	20
Pro forma net loss attributable to common stockholders	$ (28,804)
Denominator:	
Weighted-average shares of common stock outstanding, basic and diluted	13,322,652
Pro forma adjustment to reflect automatic conversion of convertible preferred stock into common stock upon the completion of the proposed IPO	26,411,214
Pro forma weighted-average common stock outstanding, basic and diluted	39,733,866
Pro forma net loss per share attributable to common stockholders, basic and diluted	$ (0.72)

NOTE 13—SUBSEQUENT EVENTS

For its consolidated interim financial statements as of March 31, 2020 and for the three months then ended, the Company evaluated subsequent events through July 6, 2020, the date on which those financial statements were reissued.

In June 2020, the Company executed the Fourth Amendment to the Loan and Security Agreement with Oxford whereby the Company extended both the interest-only period and term of the facility by 15 months. All

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outstanding Term Loans will now mature on June 1, 2024 and will have interest-only payments through January 1, 2022, followed by 30 equal monthly payments of principal and unpaid accrued interest. In conjunction with the entry into the amendment, the Company paid Oxford a facility fee of $0.3 million.

In June 2020, the Company issued and sold 10,018,300 shares of a newly authorized series of preferred stock, Series D Preferred Stock, at a price of $10.93 per share, for aggregate gross proceeds of $109.5 million. The rights, preferences and privileges of the Series D Preferred Stock are substantially the same as the Series A, Series B and Series C Preferred Stock except for the liquidation preference per share, which is equal to the per share price paid.

In connection with the issuance of the Series D Preferred Stock, the Company amended and restated its certificate of incorporation to, among other things, (1) increase the number of authorized shares of its common stock from 57,013,463 to 73,000,000 shares, (2) increase the number of authorized shares of Preferred Stock from 33,085,827 shares to 46,809,523 shares, and (3) amend the automatic conversion feature of the Preferred Stock. Upon (i) the closing of an IPO of the Company's common stock at a per share price to the public of at least $15.67 and resulting in gross proceeds to the Company of at least $100.0 million, or (ii) the affirmative vote by holders of at least (A) a majority of the then-outstanding Preferred Stock and (B) the holders of a majority of the outstanding shares of Series D Preferred Stock, all currently outstanding shares of Preferred Stock will automatically convert into shares of Common Stock.

In June 2020, the number of shares of Common Stock authorized for issuance under the 2015 Equity Incentive Plan was increased from 6,780,040 shares to 9,185,813 shares.

In July 2020, the Company effected a 1-for-1.247 reverse stock split of its common stock. The par value and the authorized number of shares of the common stock were not adjusted as a result of the reverse stock split. The reverse stock split resulted in an adjustment to the conversion price of each series of the Preferred Stock to reflect a proportional decrease in the number of shares of common stock to be issued upon conversion. The accompanying condensed consolidated financial statements and notes to the condensed consolidated financial statements give retroactive effect to the reverse stock split for all periods presented.

In July 2020, the holders of Preferred Stock elected to automatically convert all outstanding shares of Preferred Stock into the Company's common stock contingent and effective upon the closing of this offering.

In July 2020, the Company's board of directors and stockholders approved and adopted the 2020 Equity Incentive Plan (the "2020 Plan"). The 2020 Plan will become effective as of the date of the underwriting agreement for the IPO. Under the 2020 Plan, the Company may grant stock options, stock appreciation rights, restricted stock, restricted stock units and other stock or cash-based awards to individuals who are then employees, officers, directors or consultants of the Company. A total of 11,183,476 shares of common stock were approved to be initially reserved for issuance under the 2020 Plan. The number of shares that remain available for issuance under the 2015 Plan as of the effective date of the 2020 Plan and shares subject to outstanding awards under the 2015 Plan as of the effective date of the 2020 Plan that are subsequently canceled, forfeited or repurchased by the Company will be added to the shares reserved under the 2020 Plan. In addition, the number of shares of common stock available for issuance under the 2020 Plan will be automatically increased on the first day of each calendar year during the ten-year term of the 2020 Plan, beginning with January 1, 2021 and ending with January 1, 2030, by an amount equal to 5% of the outstanding number of shares of the Company's common stock on December 31st of the preceding calendar year or such lesser amount as determined by the Company's board of directors.

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In July 2020, the Company's board of directors and stockholders approved and adopted the 2020 Employee Stock Purchase Plan (the "ESPP"). The ESPP will become effective as of the date of the underwriting agreement for the IPO. A total of 615,000 shares of common stock were approved to be initially reserved for issuance under the ESPP. In addition, the number of shares of common stock available for issuance under the ESPP will be automatically increased on the first day of each calendar year during the first ten-years of the term of the ESPP, beginning with January 1, 2021 and ending with January 1, 2030, by an amount equal to the lessor of (i) 1% of the outstanding number of shares of the Company's common stock on December 31st of the preceding calendar year, (ii) 1,230,000 shares of common stock or (iii) such lesser amount as determined by the Company's board of directors.

In July 2020, the Company approved the grant of options to purchase up to an aggregate of 537,685 shares of common stock to certain officers, directors and employees of the Company, which grant is contingent and effective upon the effectiveness of the registration statement of which this prospectus forms a part and will have an exercise price that is equal to the price per share at which the Company's common stock is first sold to the public in the IPO.

Through and including , 2020 (the 25th day after the date of this prospectus) all dealers that effect transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to the dealers' obligation to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

10,000,000 Shares

Common Stock

P R O S P E C T U S

BofA Securities

Piper Sandler

William Blair

, 2020

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 13. Other Expenses of Issuance and Distribution.

The following table sets forth all expenses to be paid by us, other than underwriting discounts and commissions, in connection with this offering. All amounts shown are estimates except for the Securities and Exchange Commission, or SEC, registration fee, the Financial Industry Regulatory Authority, Inc., or FINRA, filing fee and the Nasdaq Global Select Market listing fee.

	Amount Paid or to Be Paid
SEC registration fee	$ 23,884
FINRA filing fee	28,100
Nasdaq Global Select Market listing fee	250,000
Legal fees and expenses	1,900,000
Accounting fees and expenses	600,000
Printing and engraving expenses	450,000
Transfer agent and registrar fees and expenses	15,500
Miscellaneous expenses	232,516
Total	$ 3,500,000

Item 14. Indemnification of Directors and Officers.

Section 145 of the Delaware General Corporation Law authorizes a court to award, or a corporation's board of directors to grant, indemnity to directors and officers in terms sufficiently broad to permit such indemnification under certain circumstances for liabilities, including reimbursement for expenses incurred, arising under the Securities Act of 1933, as amended, or the Securities Act. Our amended and restated certificate of incorporation that will be in effect on the completion of this offering permits indemnification of our directors, officers, employees and other agents to the maximum extent permitted by the Delaware General Corporation Law, and our amended and restated bylaws that will be in effect on the completion of this offering provide that we will indemnify our directors and officers and permit us to indemnify our employees and other agents, in each case to the maximum extent permitted by the Delaware General Corporation Law.

We have entered into indemnification agreements with our directors and officers, whereby we have agreed to indemnify our directors and officers to the fullest extent permitted by law, including indemnification against expenses and liabilities incurred in legal proceedings to which the director or officer was, or is threatened to be made, a party by reason of the fact that such director or officer is or was a director, officer, employee or agent of our company, provided that such director or officer acted in good faith and in a manner that the director or officer reasonably believed to be in, or not opposed to, the best interest of our company. At present, there is no pending litigation or proceeding involving a director or officer of our company regarding which indemnification is sought, nor is the registrant aware of any threatened litigation that may result in claims for indemnification.

We maintain insurance policies that indemnify our directors and officers against various liabilities arising under the Securities Act and the Securities Exchange Act of 1934, as amended, that might be incurred by any director or officer in his or her capacity as such.

The underwriters are obligated, under certain circumstances, under the underwriting agreement to be filed as Exhibit 1.1 hereto, to indemnify us and our officers and directors against liabilities under the Securities Act.

Item 15. Recent Sales of Unregistered Securities.

The following sets forth information regarding all unregistered securities issued and sold by the Registrant since January 1, 2017:

(1) In July 2017, the Registrant sold an aggregate of 3,253,645 shares of Series A-1 preferred stock at a purchase price of $3.43 per share for an aggregate purchase price of $11.2 million.

(2) On July 25, 2017, the Registrant issued two warrants to purchase an aggregate of 116,618 shares of Series A-1 preferred stock to Oxford Finance LLC at an exercise price of $3.43 per share. The warrants were issued in connection with the Registrant's entry into a loan and security agreement with the warrant holder. Upon the conversion of the Registrant's preferred stock in connection with the closing of this offering, the warrants will become exercisable for 93,518 shares of the Registrant's common stock at an exercise price of $4.28 per share.

(3) In March 2018, the Registrant sold, in two closings, an aggregate of 5,249,568 shares of Series B preferred stock at a purchase price of $5.81 per share for an aggregate purchase price of $30.5 million.

(4) In May and June 2018, the Registrant issued an aggregate of 475 shares of common stock to stockholders of Vindico NanoBioTechnology, LLC (formerly known as Vindico NanoBioTechnology, Inc.) pursuant to that certain Agreement and Plan of Merger and Reorganization, dated October 10, 2016, by and among the Registrant, Hermes Merger Sub I, Inc., Hermes Merger Sub II, LLC, Vindico NanoBioTechnology, LLC and Christopher Young as Stockholders' Representative, as amended.

(5) On August 13, 2018, the Registrant issued a warrant to purchase 17,212 shares of Series B preferred stock to Oxford Finance LLC at an exercise price of $5.81 per share. The warrant was issued in connection with the Registrant's entry into an amendment to the loan and security agreement with the warrant holder. Upon the conversion of the Registrant's preferred stock in connection with the closing of this offering, the warrant will become exercisable for 13,802 shares of common stock at an exercise price of $7.25 per share.

(6) On February 11, 2019, the Registrant issued warrants to purchase an aggregate of 17,212 shares of Series B preferred stock to Oxford Finance LLC at an exercise price of $5.81 per share. The warrants were issued in connection with an increase in the Registrant's outstanding principal under the existing loan and security agreement, as amended, with the warrant holder. Upon the conversion of the Registrant's preferred stock in connection with the closing of this offering, the warrants will become exercisable for an aggregate of 13,802 shares of common stock at an exercise price of $7.25 per share.

(7) From March 2019 to July 2019, the Registrant sold, in three closings, an aggregate of 14,734,774 shares of Series C preferred stock at a purchase price of $10.18 per share for an aggregate purchase price of $150.0 million.

(8) On August 26, 2019 the Registrant issued an aggregate of 866,125 shares of common stock to stockholders of Vindico NanoBioTechnology, LLC (formerly known as Vindico NanoBioTechnology, Inc.) pursuant to that certain Agreement and Plan of Merger and Reorganization, dated October 10, 2016, by and among the Registrant, Hermes Merger Sub I, Inc., Hermes Merger Sub II, LLC, Vindico NanoBioTechnology, LLC and Christopher Young as Stockholders' Representative, as amended.

(9) On June 24, 2020, the Registrant sold an aggregate of 10,018,300 shares of Series D preferred stock at a purchase price of $10.93 per share for an aggregate purchase price of $109.5 million.

(10) From January 1, 2017 to the effective date of this registration statement, the Registrant granted stock options under its 2015 equity incentive plan to purchase up to an aggregate of 3,885,072 shares of common stock to its employees, directors and consultants, at a weighted-average exercise price of $9.82 per share. Through the effective date of this registration statement, 1,441,855 shares of common stock were issued upon the exercise of options granted to certain employees, directors and consultants and the payment of $0.9 million to the Registrant was made.

The offers, sales and issuances of the securities described in this Item 15 were deemed to be exempt from registration under the Securities Act under either (i) Rule 701 promulgated under the Securities Act as offers and sale of securities pursuant to certain compensatory benefit plans and contracts relating to compensation in compliance with Rule 701 or (ii) Section 4(a)(2) of the Securities Act (and Regulation D promulgated thereunder) as transactions by an issuer not involving any public offering. The recipients of securities in each of these transactions represented their intention to acquire the securities for investment only and not with view to or for sale in connection with any distribution thereof and appropriate legends were affixed to the stock certificates and instruments issued in such transactions.

Item 16. Exhibits and Financial Statement Schedules.

(a) Exhibits.

The exhibits listed below are filed as part of this registration statement.

EXHIBIT NUMBER	DESCRIPTION OF DOCUMENT
1.1	Form of Underwriting Agreement.
2.1^#	Agreement and Plan of Merger and Reorganization, by and among the Registrant, Hermes Merger Sub I, Inc., Hermes Merger Sub II, LLC, Vindico NanoBioTechnology, Inc. and Christopher Young as Stockholders' Representative, dated October 10, 2016, as amended.
3.1	Amended and Restated Certificate of Incorporation, as amended, as currently in effect.
3.2	Form of Amended and Restated Certificate of Incorporation to become effective immediately prior to the completion of this offering.
3.3#	Bylaws, as currently in effect.
3.4	Form of Amended and Restated Bylaws to become effective immediately prior to the completion of this offering.
4.1#	Form of Common Stock Certificate of the Registrant.
4.2^	Amended and Restated Investors' Rights Agreement, by and among the Registrant and certain of its stockholders, dated June 24, 2020.
4.3#	Form of Warrant issued to Oxford Finance LLC, dated July 25, 2017.
4.4#	Form of Warrant issued to Oxford Finance LLC, dated August 13, 2018.
4.5#	Form of Warrant issued to Oxford Finance LLC, dated February 11, 2019.
5.1	Opinion of Cooley LLP.
10.1+#	Form of Indemnity Agreement, by and between the Registrant and its directors and officers.
10.2+	Poseida Therapeutics, Inc. 2015 Equity Incentive Plan, as amended, and Forms of Option Grant Notice, Option Agreement and Notice of Exercise thereunder.
10.3+	Poseida Therapeutics, Inc. 2020 Equity Incentive Plan and Forms of Stock Option Grant Notice, Option Agreement and Notice of Exercise thereunder.

EXHIBIT NUMBER	DESCRIPTION OF DOCUMENT
10.4+	Poseida Therapeutics, Inc. 2020 Employee Stock Purchase Plan.
10.5+	Poseida Therapeutics, Inc. Severance and Change in Control Plan and Form of Participation Agreement.
10.6+^#	Executive Employment Agreement, by and between the Registrant and Eric Ostertag, dated June 1, 2015.
10.7+^#	Executive Employment Agreement, by and between the Registrant and Mark Gergen, dated February 19, 2018.
10.8+^#	Offer Letter, by and between the Registrant and Matthew Spear, dated June 13, 2016.
10.9+^#	Offer Letter, by and between the Registrant and Kerry Ingalls, dated July 29, 2019.
10.10+^#	Offer Letter, by and between the Registrant and Johanna Mylet, dated June 8, 2015.
10.11+	Poseida Therapeutics, Inc. Non-Employee Director Compensation Policy.
10.12*#	License Agreement, by and between the Registrant and Janssen Biotech, Inc., effective August 3, 2015.
10.13*#	Commercial License Agreement, by and between the Registrant and TeneoBio, Inc., effective April 27, 2017.
10.14*#	Commercial License Agreement, by and between the Registrant and TeneoBio, Inc., effective August 3, 2018.
10.15*#	License Agreement, by and between the Registrant and Helmholtz-Zentrum München—Deutsches Forschungszentrum für Gesundheit und Umwelt GmbH, effective May 20, 2016.
10.16*#	License Agreement, by and between the Registrant and Genus Oncology, LLC, effective October 24, 2019.
10.17^	Loan and Security Agreement, by and among the Registrant, Vindico NanoBioTechnology, LLC and Oxford Finance LLC, dated July 25, 2017, as amended on May 15, 2018, August 13, 2018, January 3, 2019, and June 24, 2020.
10.18#	Lease, by and between the Registrant and BMR-9360-9390 Towne Centre LP, dated October 1, 2018, as amended on October 4, 2019 and March 11, 2020.
10.19#	Lease, by and between the Registrant and BMR-Eastgate Mall LP, dated July 12, 2019.
21.1#	Subsidiaries of the Registrant.
23.1	Consent of Independent Registered Public Accounting Firm.
23.2	Consent of Cooley LLP. Reference is made to Exhibit 5.1.
24.1#	Power of Attorney.

Previously filed.
^ Certain exhibits and schedules have been omitted pursuant to Item 601(a)(5) of Regulation S-K. The Registrant hereby undertakes to furnish supplementally a copy of any omitted exhibit or schedule upon request by the SEC.
+ Indicates management contract or compensatory plan.
* Pursuant to Item 601(b)(10) of Regulation S-K, certain portions of this exhibit have been omitted by means of marking such portions with asterisks because the Registrant has determined that the information is not material and would likely cause competitive harm to the Registrant if publicly disclosed.

(b) Financial Statement Schedules.

No financial statement schedules are provided because the information called for is not required or is shown either in the consolidated financial statements or related notes.

Item 17. Undertakings.

The Registrant hereby undertakes to provide to the underwriters at the closing specified in the underwriting agreement certificates in such denominations and registered in such names as required by the underwriters to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise the Registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

The undersigned Registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of San Diego, State of California, on the 6th day of July, 2020.

POSEIDA THERAPEUTICS, INC.

/s/ Eric Ostertag
Eric Ostertag, M.D., Ph.D.
President and Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

SIGNATURE	TITLE	DATE
/s/ Eric Ostertag Eric Ostertag, M.D., Ph.D.	President, Chief Executive Officer and Director *(Principal Executive Officer)*	July 6, 2020
/s/ Mark J. Gergen Mark J. Gergen, J.D.	Chief Business and Financial Officer and Director *(Principal Financial Officer)*	July 6, 2020
/s/ Johanna M. Mylet Johanna M. Mylet, C.P.A.	Vice President, Finance *(Principal Accounting Officer)*	July 6, 2020
* David Hirsch, M.D., Ph.D.	Director	July 6, 2020
* Sean Murphy	Director	July 6, 2020
* John P. Schmid, M.B.A.	Director	July 6, 2020
* Catherine J. Mackey, Ph.D.	Director	July 6, 2020
* Marcea B. Lloyd, J.D.	Director	July 6, 2020

*By: /s/ Eric Ostertag
Eric Ostertag, M.D., Ph.D.
Attorney-in-Fact

Exhibit 1.1

POSEIDA THERAPEUTICS, INC.

(a Delaware corporation)

[●] Shares of Common Stock

UNDERWRITING AGREEMENT

Dated: July [●], 2020

POSEIDA THERAPEUTICS, INC.

(a Delaware corporation)

[●] Shares of Common Stock

UNDERWRITING AGREEMENT

July [●], 2020

BofA Securities, Inc.
Piper Sandler & Co.
William Blair & Company, L.L.C.
as Representatives of the several Underwriters

c/o BofA Securities, Inc.
One Bryant Park
New York, New York 10036

c/o Piper Sandler & Co.
345 Park Avenue, 12th Floor
New York, New York 10154

c/o William Blair & Company, L.L.C.
150 N. Riverside Plaza
Chicago, Illinois 60606

Ladies and Gentlemen:

Poseida Therapeutics, Inc., a Delaware corporation (the "Company"), confirms its agreement with BofA Securities, Inc. ("BofA") Piper Sandler & Co. ("Piper Sandler") and William Blair & Co., L.L.C. ("William Blair") and each of the other Underwriters named in Schedule A hereto (collectively, the "Underwriters," which term shall also include any underwriter substituted as hereinafter provided in Section 10 hereof), for whom BofA, Piper Sandler and William Blair are acting as representatives (in such capacity, the "Representatives"), with respect to (i) the sale by the Company and the purchase by the Underwriters, acting severally and not jointly, of the respective numbers of shares of Common Stock, par value $0.0001 per share, of the Company ("Common Stock") set forth in Schedule A hereto and (ii) the grant by the Company to the Underwriters, acting severally and not jointly, of the option described in Section 2(b) hereof to purchase all or any part of [●] additional shares of Common Stock. The aforesaid [●] shares of Common Stock (the "Initial Securities") to be purchased by the Underwriters and all or any part of the [●] shares of Common Stock subject to the option described in Section 2(b) hereof (the "Option Securities") are herein called, collectively, the "Securities."

The Company understands that the Underwriters propose to make a public offering of the Securities as soon as the Representatives deem advisable after this Agreement has been executed and delivered.

The Company and Merrill Lynch, Pierce, Fenner & Smith Incorporated (an affiliate of BofA Securities, Inc., a participating Underwriter, hereafter referred to as "Merrill Lynch") agree that up to 5% of the Initial Securities to be purchased by the Underwriters (the "Reserved Securities") shall be reserved for sale by the Underwriters to certain persons

designated by the Company (the "Invitees"), as part of the distribution of the Securities by the Underwriters, subject to the terms of this Agreement, the applicable rules, regulations and interpretations of the Financial Industry Regulatory Authority, Inc. ("FINRA") and all other applicable laws, rules and regulations. The Company solely determined, without any direct or indirect participation by the Underwriters or Merrill Lynch, the Invitees who will purchase Reserved Securities (including the amount to be purchased by such persons) sold by Merrill Lynch. To the extent that such Reserved Securities are not orally confirmed for purchase by Invitees by 11:59 P.M. (New York City time) on the date of this Agreement, such Reserved Securities may be offered to the public as part of the public offering contemplated hereby.

The Company has filed with the Securities and Exchange Commission (the "Commission") a registration statement on Form S-1 (No. 333-239321), including the related preliminary prospectus or prospectuses, covering the registration of the sale of the Securities under the Securities Act of 1933, as amended (the "1933 Act"). Promptly after execution and delivery of this Agreement, the Company will prepare and file a prospectus in accordance with the provisions of Rule 430A ("Rule 430A") of the rules and regulations of the Commission under the 1933 Act (the "1933 Act Regulations") and Rule 424(b) ("Rule 424(b)") of the 1933 Act Regulations. The information included in such prospectus that was omitted from such registration statement at the time it became effective but that is deemed to be part of such registration statement at the time it became effective pursuant to Rule 430A(b) is herein called the "Rule 430A Information." Such registration statement, including the amendments thereto, the exhibits thereto and any schedules thereto, at the time it became effective, and including the Rule 430A Information, is herein called the "Registration Statement." Any registration statement filed pursuant to Rule 462(b) of the 1933 Act Regulations is herein called the "Rule 462(b) Registration Statement" and, after such filing, the term "Registration Statement" shall include the Rule 462(b) Registration Statement. Each prospectus used prior to the effectiveness of the Registration Statement, and each prospectus that omitted the Rule 430A Information that was used after such effectiveness and prior to the execution and delivery of this Agreement, is herein called a "preliminary prospectus." The final prospectus, in the form first furnished to the Underwriters for use in connection with the offering of the Securities, is herein called the "Prospectus." For purposes of this Agreement, all references to the Registration Statement, any preliminary prospectus, the Prospectus or any amendment or supplement to any of the foregoing shall be deemed to include the copy filed with the Commission pursuant to its Electronic Data Gathering, Analysis and Retrieval system or any successor system ("EDGAR").

As used in this Agreement:

"Applicable Time" means [:00 P./A.M.], New York City time, on [●], 2020 or such other time as agreed by the Company and the Representatives.

"General Disclosure Package" means any Issuer General Use Free Writing Prospectuses issued at or prior to the Applicable Time, the most recent preliminary prospectus that is distributed to investors prior to the Applicable Time and the information included on Schedule B-1 hereto, all considered together.

"Issuer Free Writing Prospectus" means any "issuer free writing prospectus," as defined in Rule 433 of the 1933 Act Regulations ("Rule 433"), including without limitation any "free writing prospectus" (as defined in Rule 405 of the 1933 Act Regulations ("Rule 405")) relating to the Securities that is (i) required to be filed with the Commission by the Company, (ii) a "road show that is a written communication" within the meaning of Rule 433(d)(8)(i), whether or not required to be filed with the Commission, or (iii) exempt from filing with the Commission pursuant to Rule 433(d)(5)(i) because it contains a description of the Securities or of the offering that does not reflect the final terms, in each case in the form filed or required to be filed with the Commission or, if not required to be filed, in the form retained in the Company's records pursuant to Rule 433(g).

"Issuer General Use Free Writing Prospectus" means any Issuer Free Writing Prospectus that is intended for general distribution to prospective investors (other than a "*bona fide* electronic road show," as defined in Rule 433 (the "Bona Fide Electronic Road Show")), as evidenced by its being specified in Schedule B-2 hereto.

"Issuer Limited Use Free Writing Prospectus" means any Issuer Free Writing Prospectus that is not an Issuer General Use Free Writing Prospectus.

"Testing-the-Waters Communication" means any oral or written communication, by the Company or by any person authorized to act on its behalf, with potential investors undertaken in reliance on Section 5(d) of the 1933 Act.

"Written Testing-the-Waters Communication" means any Testing-the-Waters Communication that is a written communication within the meaning of Rule 405 under the 1933 Act.

SECTION 1. Representations and Warranties.

(a) *Representations and Warranties by the Company*. The Company represents and warrants to each Underwriter as of the date hereof, the Applicable Time, the Closing Time (as defined below) and any Date of Delivery (as defined below), and agrees with each Underwriter, as follows:

(i) Registration Statement and Prospectuses. Each of the Registration Statement and any amendment thereto has become effective under the 1933 Act. No stop order suspending the effectiveness of the Registration Statement or any post-effective amendment thereto has been issued under the 1933 Act, no order preventing or suspending the use of any preliminary prospectus or the Prospectus has been issued and no proceedings for any of those purposes have been instituted or are pending or, to the Company's knowledge, contemplated. The Company has complied with each request (if any) from the Commission for additional information.

Each of the Registration Statement and any post-effective amendment thereto, at the time it became effective, the Applicable Time, the Closing Time and any Date of Delivery complied and will comply in all material respects with the applicable requirements of the 1933 Act and the 1933 Act Regulations. Each preliminary prospectus, the Prospectus and any amendment or supplement thereto, at the time each was filed with the Commission, and, in each case, at the Applicable Time, the Closing Time and any Date of Delivery complied and will comply in all material respects with the applicable requirements of the 1933 Act and the 1933 Act Regulations. Each preliminary prospectus delivered to the Underwriters for use in connection with this offering and the Prospectus was or will be identical to the electronically transmitted copies thereof filed with the Commission pursuant to EDGAR, except to the extent permitted by Regulation S-T.

(ii) Accurate Disclosure. Neither the Registration Statement nor any amendment thereto, at its effective time, on the date hereof, at the Closing Time or at any Date of Delivery, contained, contains or will contain an untrue statement of a material fact or omitted, omits or will omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading. At the Applicable Time and any Date of Delivery, none of (A) the General Disclosure Package, (B) any individual Issuer Limited Use Free Writing Prospectus, when considered together with the General Disclosure Package and (C) any individual Written Testing-the-Waters Communication, when considered together with the General Disclosure Package, included, includes or will include an untrue statement of a material fact or omitted, omits or will omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not

misleading. Neither the Prospectus nor any amendment or supplement thereto, as of its issue date, at the time of any filing with the Commission pursuant to Rule 424(b), at the Closing Time or at any Date of Delivery, included, includes or will include an untrue statement of a material fact or omitted, omits or will omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading.

The representations and warranties in this subsection shall not apply to statements in or omissions from the Registration Statement (or any amendment thereto), the General Disclosure Package or the Prospectus (or any amendment or supplement thereto) made in reliance upon and in conformity with written information furnished to the Company by any Underwriter through the Representatives expressly for use therein. For purposes of this Agreement, the only information so furnished shall be the information in the first paragraph under the heading "Underwriting–Commissions and Discounts," the information in the second, third and fourth paragraphs under the heading "Underwriting–Price Stabilization, Short Positions and Penalty Bids" and the information under the heading "Underwriting–Electronic Distribution" in each case contained in the Prospectus (collectively, the "Underwriter Information").

(iii) Issuer Free Writing Prospectuses. No Issuer Free Writing Prospectus conflicts or will conflict with the information contained in the Registration Statement or the Prospectus, and any preliminary or other prospectus deemed to be a part thereof that has not been superseded or modified. The representations and warranties in this subsection shall not apply to statements in or omissions from any Issuer Free Writing Prospectus made in reliance upon and in conformity with the Underwriter Information. The Company has made available a Bona Fide Electronic Road Show in compliance with Rule 433(d)(8)(ii) such that no filing of any "road show" (as defined in Rule 433(h)) is required in connection with the offering of the Securities.

(iv) Testing-the-Waters Materials. The Company (A) has not alone engaged in any Testing-the-Waters Communication other than Testing-the-Waters Communications with the consent of the Representatives with entities that the Company has a reasonable basis to believe are qualified institutional buyers within the meaning of Rule 144A under the 1933 Act or institutions that are accredited investors within the meaning of Rule 501 under the 1933 Act and (B) has not authorized anyone other than the Representatives to engage in Testing-the-Waters Communications. The Company reconfirms that the Representatives have been authorized to act on its behalf in undertaking Testing-the-Waters Communications. The Company has not distributed any Written Testing-the-Waters Communications other than those listed on Schedule C hereto.

(v) Company Not Ineligible Issuer. At the time of filing the Registration Statement and any post-effective amendment thereto, at the earliest time thereafter that the Company or another offering participant made a *bona fide* offer (within the meaning of Rule 164(h)(2) of the 1933 Act Regulations) of the Securities and at the date hereof, the Company was not and is not an "ineligible issuer," as defined in Rule 405, without taking account of any determination by the Commission pursuant to Rule 405 that it is not necessary that the Company be considered an ineligible issuer.

(vi) Emerging Growth Company Status. From the time of the initial confidential submission of the Registration Statement to the Commission (or, if earlier, the first date on which the Company engaged directly or through any Person authorized to act on its behalf in any Testing-the-Waters Communication) through the date hereof, the Company has been and is an "emerging growth company," as defined in Section 2(a) of the 1933 Act (an "Emerging Growth Company").

(vii) Independent Accountants. The accountants who certified the financial statements and supporting schedules, if any, included in the Registration Statement, the General Disclosure Package and the Prospectus are independent public accountants as required by the 1933 Act, the 1933 Act Regulations and the Public Company Accounting Oversight Board.

(viii) Financial Statements. The financial statements included in the Registration Statement, the General Disclosure Package and the Prospectus, together with the related schedules, if any, and notes, present fairly, in all material respects, the financial position of the Company and its consolidated subsidiaries at the dates indicated and the statement of operations, stockholders' equity and cash flows of the Company and its consolidated subsidiaries for the periods specified; said financial statements have been prepared in conformity with U.S. generally accepted accounting principles ("GAAP") applied on a consistent basis throughout the periods involved except, in the case of unaudited interim financial statements, subject to normal year-end audit adjustments and the exclusion of certain footnotes as permitted by applicable rules of the Commission. The supporting schedules, if any, present fairly in accordance with GAAP the information required to be stated therein. The selected financial data and the summary financial information included in the Registration Statement, the General Disclosure Package and the Prospectus present fairly, in all material respects, the information shown therein and have been compiled on a basis consistent with that of the audited financial statements included therein. Except as included therein, no historical or pro forma financial statements or supporting schedules are required to be included in the Registration Statement, the General Disclosure Package or the Prospectus under the 1933 Act or the 1933 Act Regulations.

(ix) No Material Adverse Change in Business. Except as otherwise stated therein, since the respective dates as of which information is given in the Registration Statement, the General Disclosure Package or the Prospectus, (A) there has been no material adverse change in the condition, financial or otherwise, or in the earnings, business affairs or business prospects of the Company and its subsidiaries considered as one enterprise, whether or not arising in the ordinary course of business (a "Material Adverse Effect"), (B) there have been no transactions entered into by the Company or any of its subsidiaries, other than those in the ordinary course of business, which are material with respect to the Company and its subsidiaries considered as one enterprise, and (C) there has been no dividend or distribution of any kind declared, paid or made by the Company on any class of its capital stock.

(x) Good Standing of the Company. The Company has been duly incorporated and is validly existing as a corporation in good standing under the laws of the State of Delaware and has corporate power and authority to own, lease and operate its properties and to conduct its business as described in the Registration Statement, the General Disclosure Package and the Prospectus and to enter into and perform its obligations under this Agreement; and the Company is duly qualified as a foreign corporation to transact business and is in good standing in each other jurisdiction (to the extent the concept of "good standing" is applicable in each such jurisdiction) in which such qualification is required, whether by reason of the ownership or leasing of property or the conduct of business, except where the failure so to qualify or to be in good standing would not reasonably be expected to result in a Material Adverse Effect.

(xi) Good Standing of Subsidiaries. Each "significant subsidiary" of the Company (as such term is defined in Rule 1-02 of Regulation S-X) (each, a "Subsidiary" and, collectively, the "Subsidiaries") has been duly organized and is validly existing in good standing under the laws of the jurisdiction of its incorporation or organization, has corporate or similar power and authority to own, lease and operate its properties and to conduct its business as described in the Registration Statement, the General Disclosure Package and the Prospectus and is duly qualified to transact business and is in good standing in each jurisdiction (to the extent the concept of "good standing" is applicable in each such jurisdiction) in which such qualification is required, whether by reason of the ownership or leasing of property or the conduct of business, except where the failure to so qualify or to be in good

standing would not reasonably be expected to result in a Material Adverse Effect. Except as otherwise disclosed in the Registration Statement, the General Disclosure Package and the Prospectus, all of the issued and outstanding capital stock of each Subsidiary has been duly authorized and validly issued, is fully paid and non-assessable and is owned by the Company, directly or through subsidiaries, free and clear of any security interest, mortgage, pledge, lien, encumbrance, claim or equity. None of the outstanding shares of capital stock of any Subsidiary were issued in violation of the preemptive or similar rights of any securityholder of such Subsidiary. The only subsidiaries of the Company are the subsidiaries listed on Exhibit 21.1 to the Registration Statement.

(xii) Capitalization. The authorized, issued and outstanding shares of capital stock of the Company are as set forth in the Registration Statement, the General Disclosure Package and the Prospectus as of the date referred to therein in the column entitled "Actual" under the caption "Capitalization" (except for subsequent issuances, if any, pursuant to this Agreement, pursuant to reservations, agreements or employee benefit or equity incentive plans referred to in the Registration Statement, the General Disclosure Package and the Prospectus or pursuant to the exercise of convertible securities or options referred to in the Registration Statement, the General Disclosure Package and the Prospectus). The outstanding shares of capital stock of the Company have been duly authorized and validly issued and are fully paid and non-assessable. None of the outstanding shares of capital stock of the Company were issued in violation of the preemptive or other similar rights of any securityholder of the Company.

(xiii) Authorization of Agreement. This Agreement has been duly authorized, executed and delivered by the Company.

(xiv) Authorization and Description of Securities. The Securities to be purchased by the Underwriters from the Company have been duly authorized for issuance and sale to the Underwriters pursuant to this Agreement and, when issued and delivered by the Company pursuant to this Agreement against payment of the consideration set forth herein, will be validly issued and fully paid and non-assessable; and the issuance of the Securities is not subject to the preemptive or other similar rights of any securityholder of the Company. The Common Stock conforms in all material respects to all statements relating thereto contained in the Registration Statement, the General Disclosure Package and the Prospectus and such description conforms in all material respects to the rights set forth in the instruments defining the same. No holder of Securities will be subject to personal liability solely by reason of being such a holder.

(xv) Registration Rights. There are no persons with registration rights or other similar rights to have any securities registered for sale pursuant to the Registration Statement or otherwise registered for sale or sold by the Company under the 1933 Act pursuant to this Agreement, other than those rights that have been disclosed in the Registration Statement, the General Disclosure Package and the Prospectus and have been waived.

(xvi) Absence of Violations, Defaults and Conflicts. Neither the Company nor any of its subsidiaries is (A) in violation of its charter, by-laws or similar organizational document, (B) in default in the performance or observance of any obligation, agreement, covenant or condition contained in any contract, indenture, mortgage, deed of trust, loan or credit agreement, note, lease or other agreement or instrument to which the Company or any of its subsidiaries is a party or by which it or any of them may be bound or to which any of the properties or assets of the Company or any subsidiary is subject (collectively, "Agreements and Instruments"), except for such defaults that would not, singly or in the aggregate, reasonably be expected to result in a Material Adverse Effect, or (C) in violation of any law, statute, rule, regulation, judgment, order, writ or decree of any arbitrator, court, governmental body, regulatory body, administrative agency or other authority, body or agency having

jurisdiction over the Company or any of its subsidiaries or any of their respective properties, assets or operations (each, a "Governmental Entity"), except for such violations that would not, singly or in the aggregate, reasonably be expected to result in a Material Adverse Effect. The execution, delivery and performance of this Agreement and the consummation of the transactions contemplated herein and in the Registration Statement, the General Disclosure Package and the Prospectus (including the issuance and sale of the Securities and the use of the proceeds from the sale of the Securities as described therein under the caption "Use of Proceeds") and compliance by the Company with its obligations hereunder have been duly authorized by all necessary corporate action and do not and will not, whether with or without the giving of notice or passage of time or both, conflict with or constitute a breach of, or default or Repayment Event (as defined below) under, or result in the creation or imposition of any lien, charge or encumbrance upon any properties or assets of the Company or any subsidiary pursuant to, the Agreements and Instruments (except for such conflicts, breaches, defaults or Repayment Events or liens, charges or encumbrances that would not, singly or in the aggregate, reasonably be expected to result in a Material Adverse Effect), nor will such action result in any violation of (x) the provisions of the charter, by-laws or similar organizational document of the Company or any of its subsidiaries or (y) any law, statute, rule, regulation, judgment, order, writ or decree of any Governmental Entity, except with respect to clause (y), for such violations that would not, singly or in the aggregate, reasonably be expected to result in a Material Adverse Effect. As used herein, a "Repayment Event" means any event or condition which gives the holder of any note, debenture or other evidence of indebtedness (or any person acting on such holder's behalf) the right to require the repurchase, redemption or repayment of all or a portion of such indebtedness by the Company or any of its subsidiaries.

(xvii) Absence of Labor Dispute. No labor dispute with the employees of the Company or any of its subsidiaries exists or, to the knowledge of the Company, is imminent, and the Company is not aware of any existing or imminent labor disturbance by the employees of any of its or any subsidiary's principal suppliers, manufacturers, or contractors, which, in either case, would reasonably be expected to result in a Material Adverse Effect.

(xviii) Absence of Proceedings. Except as disclosed in the Registration Statement, the General Disclosure Package and the Prospectus, there is no action, suit, proceeding, inquiry or investigation before or brought by any Governmental Entity now pending or, to the knowledge of the Company, threatened, against or affecting the Company or any of its subsidiaries, which would reasonably be expected to result in a Material Adverse Effect, or which would reasonably be expected to materially and adversely affect their respective properties or assets or the consummation of the transactions contemplated in this Agreement or the performance by the Company of its obligations hereunder; and the aggregate of all pending legal or governmental proceedings to which the Company or any such subsidiary is a party or of which any of their respective properties or assets is the subject which are not described in the Registration Statement, the General Disclosure Package and the Prospectus, including ordinary routine litigation incidental to the business, could not reasonably be expected to result in a Material Adverse Effect.

(xix) Accuracy of Exhibits; Statements. There are no contracts or documents which are required under the 1933 Act or the 1933 Act Regulations to be described in the Registration Statement, the General Disclosure Package or the Prospectus or to be filed as exhibits to the Registration Statement which have not been so described and filed as required; and the statements in the Preliminary Prospectus and the Prospectus under the headings: "Risk Factors – Risks Related to Our Intellectual Property", "Business – Intellectual Property", "Business – License Agreements", "Business – Government Regulation", "Description of Capital Stock", "Shares Eligible for Future Sale" and "Material U.S. Federal Income Tax Considerations to Non-U.S. Holders of Common Stock", insofar as such statements summarize legal matters, agreements, documents or proceedings discussed therein, are accurate and fair summaries of such legal matters, agreements, documents or proceedings in all material respects.

(xx) Absence of Further Requirements. No filing with, or authorization, approval, consent, license, order, registration, qualification or decree of, any Governmental Entity is necessary or required for the performance by the Company of its obligations hereunder, in connection with the offering, issuance or sale of the Securities hereunder or the consummation of the transactions contemplated by this Agreement, except (A) such as have been already obtained or as may be required under the 1933 Act, the 1933 Act Regulations, the rules of the Nasdaq Global Select Market, state securities laws or the rules of FINRA and (B) such as have been obtained under the laws and regulations of jurisdictions outside the United States in which the Reserved Securities were offered.

(xxi) Possession of Licenses and Permits. The Company and its subsidiaries possess, and are in compliance in all material respects with the terms of, all certificates, approvals, clearances, registrations, franchises, exemptions, licenses, permits and other authorizations necessary to the conduct of the business conducted by it (collectively, "Governmental Licenses"), including without limitation, all such Governmental Licenses required by the United States Food and Drug Administration or any component thereof, the United States Drug Enforcement Administration and/or by any other U.S., state, local or foreign government or drug regulatory agency (collectively, the "Regulatory Agencies"). All such Governmental Licenses are in full force and effect and neither the Company nor its subsidiaries is in violation of any term of such Governmental License, except in each case as would not, individually or in the aggregate, have a Material Adverse Effect. The Company and its subsidiaries have fulfilled and performed all of their material obligations with respect to the Governmental Licenses and, to the Company's knowledge, no event has occurred which allows, or after notice or lapse of time would allow, revocation or termination thereof or results in any other material impairment of the rights of the holder of any Governmental License. Neither the Company nor its subsidiaries has received any written notice of proceedings relating to the revocation or modification of any Governmental Licenses that, if determined adversely to the Company or its subsidiaries, would reasonably be expected to have a Material Adverse Effect. To the Company's knowledge, no party granting any such Governmental Licenses has taken any action to limit, suspend or revoke the same in any material respect.

(xxii) Clinical Data. The preclinical tests and clinical trials that are described in, or the results of which are referred to in, the Registration Statement, the General Disclosure Package and the Prospectus were and, if still pending, are being conducted in all material respects in accordance with all applicable laws, rules, and regulations of the Regulatory Agencies, including without limitation 21 C.F.R. Parts 50, 54, 56, 58 and 312; each description of such tests and trials, and the results thereof, contained in the Registration Statements, the General Disclosure Package and the Prospectus is accurate and complete in all material respects and fairly presents the data about and derived from such tests and trials, and the Company has no knowledge of any other studies or tests the results of which are inconsistent with, or otherwise call into question, the results described or referred to in the Registration Statements, the General Disclosure Package and the Prospectus. Neither the Company nor its subsidiaries has received any written notices or other correspondence from any Regulatory Agency requiring the termination, suspension or material modification of any preclinical tests or clinical trials that are, or the results of which are, described or referred to in the Registration Statements, the General Disclosure Package or the Prospectus.

(xxiii) Regulatory Compliance. Except as described in the Registration Statement, the General Disclosure Package and the Prospectus, the Company and its subsidiaries: (i) within the last five (5) years have not received any Form 483, written notice of adverse finding, warning letter, untitled letter or other correspondence or written notice from any Regulatory Agency or any other

governmental authority alleging or asserting noncompliance with any applicable Healthcare Laws (as defined below) or the terms of any Government License, except in each case as would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect; (ii) have not received written notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from any Regulatory Agency or other governmental authority or third party alleging that any product operation or activity is in violation of any Healthcare Laws or Government Licenses and have no knowledge that any such Regulatory Agency or other governmental authority or third party is considering any such claim, litigation, arbitration, action, suit, investigation or proceeding, except in each case as would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect; (iii) (a) have filed, obtained, maintained or submitted all material reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by any Healthcare Laws or Government Licenses, (b) except as would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect, all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were complete and correct and not misleading on the date filed (or were corrected or supplemented by a subsequent submission), and (c) neither the Company nor its subsidiaries is aware of any reasonable basis for any material liability with respect to such filings; and (iv) have not, and to the knowledge of the Company, the Company's officers, employees and agents have not, made any untrue statement of a material fact or fraudulent statement to any governmental authority or failed to disclose a material fact required to be disclosed to any governmental authority.

(xxiv) Compliance with Healthcare Laws. Except where instances of failure to comply would not, whether individually or in the aggregate, reasonably be expected to have a Material Adverse Effect, the Company and its subsidiaries are and have been in compliance with all applicable foreign, federal, state and local healthcare laws, rules and regulations, including, without limitation, (i) the Federal Food, Drug, and Cosmetic Act (21 U.S.C. §§ 301 et seq.); (ii) the Public Health Service Act (42 U.S.C. §§ 201 et seq.); (iii) all healthcare related fraud and abuse laws, including, without limitation, the federal Anti-kickback Statute (42 U.S.C. § 1320a-7b(b)), the civil False Claims Act (31 U.S.C. §§ 3729 et seq.), the criminal False Claims Law (42 U.S.C. § 1320a-7b(a)), the civil monetary penalties law (42 U.S.C. § 1320a-7a), the exclusions law (42 U.S.C. § 1320a-7), the Physician Payments Sunshine Act (42 U.S.C. § 1320a-7h), all criminal laws relating to healthcare fraud and abuse, including but not limited to 18 U.S.C. Sections 286, 287, 1035, 1347 and 1349, the healthcare fraud criminal provisions under the U.S. Health Insurance Portability and Accountability Act of 1996 ("HIPAA") (42 U.S.C. §§1320d et seq.), the Medicare statute (Title XVIII of the Social Security Act), and the Medicaid statute (Title XIX of the Social Security Act); and (iv) the patient privacy, data security and beach notification provisions under HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 (42 U.S.C. §§17921 et seq.); each as amended and the regulations promulgated pursuant to such laws (collectively, the "Healthcare Laws"). Neither the Company nor its subsidiaries, nor to the Company's knowledge, their officers, directors, employees, agents, have engaged in activities which are, as applicable, cause for false claims liability, civil penalties, or mandatory or permissive exclusion from Medicare, Medicaid, or any other state or federal healthcare program. Neither the Company nor its subsidiaries is a party to or has any ongoing reporting obligations pursuant to any corporate integrity agreement, deferred prosecution agreement, monitoring agreement, consent decree, settlement order, plan of correction or similar agreement with or imposed by any governmental or regulatory authority. Additionally, neither the Company nor its subsidiaries, nor any of their employees, officers or directors, or to the Company's knowledge, agents, is or has been excluded, suspended, debarred or is otherwise ineligible to participate in any U.S. state or federal healthcare program or human clinical research or, to the knowledge of the Company, is subject to a governmental inquiry, investigation, proceeding, or other similar action that could reasonably be expected to result in debarment, suspension, or exclusion.

(xxv) Title to Property. The Company and its subsidiaries have good and marketable title to all real property owned by them and good title to all other properties owned by them, in each case, free and clear of all mortgages, pledges, liens, security interests, claims, restrictions or encumbrances of any kind except such as (A) are described in the Registration Statement, the General Disclosure Package and the Prospectus or (B) do not, singly or in the aggregate, materially affect the value of such property and do not materially interfere with the use made and proposed to be made of such property by the Company or any of its subsidiaries; and all of the leases and subleases material to the business of the Company and its subsidiaries, considered as one enterprise, and under which the Company or any of its subsidiaries holds properties described in the Registration Statement, the General Disclosure Package or the Prospectus, are in full force and effect, and neither the Company nor any such subsidiary has any notice of any material claim of any sort that has been asserted by anyone adverse to the rights of the Company or any subsidiary under any of the leases or subleases mentioned above, or affecting or questioning the rights of the Company or such subsidiary to the continued possession of the leased or subleased premises under any such lease or sublease, except to the extent that where such failure to be in effect or such claim or adverse effect on the Company's rights would not reasonably be expected to result in a Material Adverse Effect.

(xxvi) Possession of Intellectual Property. The Company and its subsidiaries own or possess, or can acquire on reasonable terms, adequate patents, patent rights, licenses, inventions, copyrights, know-how (including trade secrets and other unpatented and/or unpatentable proprietary or confidential information, systems or procedures), trademarks, service marks, trade names or other intellectual property (collectively, "Intellectual Property") necessary to carry on the business now operated by them. To the Company's knowledge: (a) there are no rights of third parties to any such Intellectual Property; (b) there is no material infringement by third parties of any such Intellectual Property; (c) there is no pending or threatened action, suit, proceeding or claim by others challenging the Company's rights in or to any such Intellectual Property, and the Company is unaware of any facts which would form a reasonable basis for any such claim; (d) there is no pending or threatened action, suit, proceeding or claim by others challenging the validity or scope of any such Intellectual Property, and the Company is unaware of any facts which would form a reasonable basis for any such claim; (e) there is no pending or threatened action, suit, proceeding or claim by others that the Company infringes or otherwise violates any patent, trademark, copyright, trade secret or other proprietary rights of others, and the Company is unaware of any other fact which would form a reasonable basis for any such claim; (f) there is no U.S. patent or published U.S. patent application which contains valid claims that dominate or may dominate any Intellectual Property described in the General Disclosure Package and the Prospectus as being owned by or licensed to the Company or that interferes with the issued or pending claims of any such Intellectual Property; and (g) there is no prior art of which the Company is aware that may render any U.S. patent held by the Company invalid or any U.S. patent application held by the Company un-patentable which has not been disclosed to the U.S. Patent and Trademark Office.

(xxvii) Environmental Laws. Except as described in the Registration Statement, the General Disclosure Package and the Prospectus or would not, singly or in the aggregate, reasonably be expected to result in a Material Adverse Effect, (A) neither the Company nor any of its subsidiaries is in violation of any U.S. federal, state, local or foreign statute, law, rule, regulation, ordinance, code, policy or rule of common law or any judicial or administrative interpretation thereof, including any judicial or administrative order, consent, decree or judgment, relating to pollution or protection of human health, the environment (including, without limitation, ambient air, surface water, groundwater, land surface or subsurface strata) or wildlife, including, without limitation, laws and regulations relating to the release or threatened release of chemicals, pollutants, contaminants, wastes, toxic substances, hazardous substances, petroleum or petroleum products, asbestos-containing materials or mold (collectively, "Hazardous Materials") or to the manufacture, processing, distribution, use,

treatment, storage, disposal, transport or handling of Hazardous Materials (collectively, "Environmental Laws"), (B) the Company and its subsidiaries have all permits, authorizations and approvals required under any applicable Environmental Laws and are each in compliance with their requirements, (C) there are no pending, or to the Company's knowledge, threatened, administrative, regulatory or judicial actions, suits, demands, demand letters, claims, liens, notices of noncompliance or violation, investigations or proceedings relating to any Environmental Law against the Company or any of its subsidiaries and (D) there are no events or circumstances that would reasonably be expected to form the basis of an order for clean-up or remediation, or an action, suit or proceeding by any private party or Governmental Entity, against or affecting the Company or any of its subsidiaries relating to Hazardous Materials or any Environmental Laws.

(xxviii) Accounting Controls. The Company and each of its subsidiaries maintain effective internal control over financial reporting (as defined under Rule 13a-15 and 15d-15 under the rules and regulations of the Commission under the Securities Exchange Act of 1934, as amended (such act, the "1934 Act" and such rules and regulations, the "1934 Act Regulations")) and a system of internal accounting controls sufficient to provide reasonable assurances that (A) transactions are executed in accordance with management's general or specific authorization; (B) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain accountability for assets; (C) access to assets is permitted only in accordance with management's general or specific authorization; and (D) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences. Except as described in the Registration Statement, the General Disclosure Package and the Prospectus, since the end of the Company's most recent audited fiscal year, there has been (1) no material weakness in the Company's internal control over financial reporting (whether or not remediated) and (2) no change in the Company's internal control over financial reporting that has materially and adversely affected, or is reasonably likely to materially and adversely affect, the Company's internal control over financial reporting.

(xxix) Compliance with the Sarbanes-Oxley Act. The Company has taken all necessary actions to ensure that, upon the effectiveness of the Registration Statement, it will be in compliance with all provisions of the Sarbanes-Oxley Act of 2002 and all rules and regulations promulgated thereunder or implementing the provisions thereof (the "Sarbanes-Oxley Act") that are then in effect and with which the Company is required to comply as of the effectiveness of the Registration Statement, and is or will be taking reasonable steps to enable it to be in compliance with other provisions of the Sarbanes-Oxley Act not currently in effect, upon the effectiveness of such provisions, or which will become applicable to the Company at all times after the effectiveness of the Registration Statement.

(xxx) Payment of Taxes. All United States federal income tax returns of the Company and its subsidiaries required by law to be filed have been filed (after giving effect to any extensions provided by law that have been requested) and all taxes shown by such returns or otherwise assessed, which are due and payable, have been paid, except assessments against which appeals have been or will be promptly taken and as to which adequate reserves have been provided. The United States federal income tax returns of the Company through the fiscal year ended December 31, 2019 have been settled and no assessment in connection therewith has been made against the Company. The Company and its subsidiaries have filed all other tax returns that are required to have been filed by them pursuant to applicable foreign, state, local or other law except insofar as the failure to file such returns would not, singly or in the aggregate, reasonably be expected to result in a Material Adverse Effect, and has paid all taxes due pursuant to such returns or pursuant to any assessment received by the Company and its subsidiaries, except for such taxes, if any, as are being contested in good faith and as to which adequate reserves have been established by the Company. The charges, accruals and

reserves on the books of the Company in respect of any income and corporation tax liability for any years not finally determined are adequate to meet any assessments or re-assessments for additional income tax for any years not finally determined, except to the extent of any inadequacy that would not, singly or in the aggregate, reasonably be expected to result in a Material Adverse Effect.

(xxxi) Insurance. The Company and its subsidiaries carry or are entitled to the benefits of insurance, with financially sound and reputable insurers, in such amounts and covering such risks as the Company reasonably believes is generally maintained by companies of established repute and comparable size engaged in the same or similar business, and all such insurance is in full force and effect. The Company has no reason to believe that it or any of its subsidiaries will not be able (A) to renew its existing insurance coverage as and when such policies expire or (B) to obtain comparable coverage from similar institutions as may be necessary or appropriate to conduct its business as now conducted and at a cost that would not, singly or in the aggregate, reasonably be expected to result in a Material Adverse Effect. Neither of the Company nor any of its subsidiaries has been denied any insurance coverage which it has sought or for which it has applied.

(xxxii) Investment Company Act. The Company is not required, and immediately upon the issuance and sale of the Securities as herein contemplated and the application of the net proceeds therefrom as described in the Registration Statement, the General Disclosure Package and the Prospectus will not be required, to register as an "investment company" under the Investment Company Act of 1940, as amended (the "1940 Act").

(xxxiii) Absence of Manipulation. Neither the Company nor, to the knowledge of the Company, any affiliate of the Company has taken, nor will the Company or, to the knowledge of the Company, any affiliate of the Company take, directly or indirectly (without giving effect to the activities of the Underwriters), any action which is designed, or would reasonably be expected, to cause or result in, or which constitutes, the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Securities or to result in a violation of Regulation M under the 1934 Act.

(xxxiv) Foreign Corrupt Practices Act. None of the Company, any of its subsidiaries or, to the knowledge of the Company, any director, officer, agent, employee, affiliate or other person acting on behalf of the Company or any of its subsidiaries is aware of or has taken any action, directly or indirectly, that would result in a violation by such persons of the Foreign Corrupt Practices Act of 1977, as amended, and the rules and regulations thereunder (the "FCPA"), including, without limitation, making use of the mails or any means or instrumentality of interstate commerce corruptly in furtherance of an offer, payment, promise to pay or authorization of the payment of any money, or other property, gift, promise to give, or authorization of the giving of anything of value to any "foreign official" (as such term is defined in the FCPA) or any foreign political party or official thereof or any candidate for foreign political office, in contravention of the FCPA and the Company and, to the knowledge of the Company, its affiliates have conducted their businesses in compliance with the FCPA.

(xxxv) Money Laundering Laws. The operations of the Company and its subsidiaries are and have been conducted at all times in compliance in all material respects with applicable financial recordkeeping and reporting requirements of the Currency and Foreign Transactions Reporting Act of 1970, as amended, the money laundering statutes of all applicable jurisdictions, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any Governmental Entity (collectively, the "Money Laundering Laws"); and no action, suit or proceeding by or before any Governmental Entity involving the Company or any of its subsidiaries with respect to the Money Laundering Laws is pending or, to the knowledge of the Company, threatened.

(xxxvi) OFAC. None of the Company, any of its subsidiaries or, to the knowledge of the Company, any director, officer, agent, employee, affiliate or representative of the Company or any of its subsidiaries is an individual or entity ("Person") currently the subject or target of any sanctions administered or enforced by the United States Government, including, without limitation, the U.S. Department of the Treasury's Office of Foreign Assets Control ("OFAC"), the United Nations Security Council, the European Union, Her Majesty's Treasury, or other relevant sanctions authority (collectively, "Sanctions"), nor is the Company located, organized or resident in a country or territory that is the subject of applicable Sanctions; and the Company will not directly or indirectly use the proceeds of the sale of the Securities, or lend, contribute or otherwise make available such proceeds to any subsidiaries, joint venture partners or other Person, to fund any activities of or business with any Person, or in any country or territory, that, at the time of such funding, is the subject of Sanctions or in any other manner that will result in a violation by any Person (including any Person participating in the transaction, whether as underwriter, advisor, investor or otherwise) of Sanctions.

(xxxvii) Sales of Reserved Securities. In connection with any offer and sale of Reserved Securities outside the United States, each preliminary prospectus, the Prospectus and any amendment or supplement thereto, at the time it was delivered, complied and will comply in all material respects with any applicable laws or regulations of foreign jurisdictions in which the same is distributed. The Company has not offered, or caused the Representatives or Merrill Lynch to offer, Reserved Securities to any person with the specific intent to unlawfully influence (i) a customer or supplier of the Company or any of its affiliates to alter the customer's or supplier's level or type of business with any such entity or (ii) a trade journalist or publication to write or publish favorable information about the Company or any of its affiliates, or their respective businesses or products.

(xxxviii) Lending Relationship. Except as disclosed in the Registration Statement, the General Disclosure Package and the Prospectus, the Company (i) does not have any material lending or other relationship with any bank or lending affiliate of any Underwriter and (ii) does not intend to use any of the proceeds from the sale of the Securities to repay any outstanding debt owed to any affiliate of any Underwriter.

(xxxix) Statistical and Market-Related Data. Any statistical and market-related data included in the Registration Statement, the General Disclosure Package or the Prospectus are based on or derived from sources that the Company believes, after reasonable inquiry, to be reliable and accurate in all material respects and, to the extent required, the Company has obtained the written consent to the use of such data from such sources.

(xl) Cybersecurity. (A) To the Company's knowledge, there has been no material security breach or incident, unauthorized access or disclosure, or other compromise of the Company's or its subsidiaries' information technology and computer systems, networks, hardware, software, data and databases (including the data and information of their respective employees, suppliers, and vendors), equipment or technology (collectively, "IT Systems and Data"); (B) neither the Company nor its subsidiaries have been notified of, and each of them have no knowledge of any event or condition that could result in, any material security breach or incident, unauthorized access or disclosure or other compromise to their IT Systems and Data and (C) the Company and its subsidiaries have implemented appropriate controls, policies, procedures, and technological safeguards designed to maintain and protect the integrity, continuous operation, redundancy and security of their IT Systems and Data reasonably consistent with industry standards and practices, or as required by applicable regulatory standards. The Company and its subsidiaries are presently in material

compliance with all applicable laws or statutes and all judgments, orders, rules and regulations of any court or arbitrator or governmental or regulatory authority relating to the privacy and security of IT Systems and Data and to the protection of such IT Systems and Data from unauthorized use, access, misappropriation or modification.

(b) *Officer's Certificates*. Any certificate signed by any officer of the Company or any of its subsidiaries delivered to the Representatives or to counsel for the Underwriters shall be deemed a representation and warranty by the Company to each Underwriter as to the matters covered thereby.

SECTION 2. Sale and Delivery to Underwriters; Closing.

(a) *Initial Securities*. On the basis of the representations and warranties herein contained and subject to the terms and conditions herein set forth, the Company agrees to sell to each Underwriter, severally and not jointly, and each Underwriter, severally and not jointly, agrees to purchase from the Company, at the price per share set forth in Schedule A, that number of Initial Securities set forth in Schedule A opposite the name of such Underwriter, plus any additional number of Initial Securities which such Underwriter may become obligated to purchase pursuant to the provisions of Section 10 hereof, subject, in each case, to such adjustments among the Underwriters as the Representatives in their sole discretion shall make to eliminate any sales or purchases of fractional shares.

(b) *Option Securities*. In addition, on the basis of the representations and warranties herein contained and subject to the terms and conditions herein set forth, the Company hereby grant(s) an option to the Underwriters, severally and not jointly, to purchase up to an additional [●] shares of Common Stock, at the price per share set forth in Schedule A, less an amount per share equal to any dividends or distributions declared by the Company and payable on the Initial Securities but not payable on the Option Securities. The option hereby granted may be exercised for 30 days after the date hereof and may be exercised in whole or in part at any time from time to time upon notice by the Representatives to the Company setting forth the number of Option Securities as to which the several Underwriters are then exercising the option and the time and date of payment and delivery for such Option Securities. Any such time and date of delivery (a "Date of Delivery") shall be determined by the Representatives, but shall not be later than seven full business days after the exercise of said option, nor in any event prior to the Closing Time. If the option is exercised as to all or any portion of the Option Securities, each of the Underwriters, acting severally and not jointly, will purchase that proportion of the total number of Option Securities then being purchased which the number of Initial Securities set forth in Schedule A opposite the name of such Underwriter bears to the total number of Initial Securities, subject, in each case, to such adjustments as the Representatives in their sole discretion shall make to eliminate any sales or purchases of fractional shares.

(c) *Payment*. Payment of the purchase price for, and delivery of certificates or security entitlements for, the Initial Securities shall be made at the offices of Latham & Watkins LLP counsel for the Underwriters, at 12670 High Bluff Drive, San Diego, CA 92130, or at such other place as shall be agreed upon by the Representatives and the Company, at 9:00 A.M. (New York City time) on the second (third, if the pricing occurs after 4:30 P.M. (New York City time) on any given day) business day after the date hereof (unless postponed in accordance with the provisions of Section 10), or such other time not later than ten business days after such date as shall be agreed upon by the Representatives and the Company (such time and date of payment and delivery being herein called "Closing Time").

In addition, in the event that any or all of the Option Securities are purchased by the Underwriters, payment of the purchase price for, and delivery of certificates or security entitlements for, such Option Securities shall be made at the above-mentioned offices, or at such other place as shall be agreed upon by the Representatives and the Company, on each Date of Delivery as specified in the notice from the Representatives to the Company.

Payment shall be made to the Company by wire transfer of immediately available funds to a bank account designated by the Company against delivery to the Representatives for the respective accounts of the Underwriters of certificates or security entitlements for the Securities to be purchased by them. It is understood that each Underwriter has authorized the Representatives, for its account, to accept delivery of, receipt for, and make payment of the purchase price for, the Initial Securities and the Option Securities, if any, which it has agreed to purchase. The Representatives, individually and not as representatives of the Underwriters, may (but shall not be obligated to) make payment of the purchase price for the Initial Securities or the Option Securities, if any, to be purchased by any Underwriter whose funds have not been received by the Closing Time or the relevant Date of Delivery, as the case may be, but such payment shall not relieve such Underwriter from its obligations hereunder.

SECTION 3. Covenants of the Company. The Company covenants with each Underwriter as follows:

(a) *Compliance with Securities Regulations and Commission Requests*. The Company, subject to Section 3(b), will comply with the requirements of Rule 430A, and will notify the Representatives immediately, and confirm the notice in writing, (i) when any post-effective amendment to the Registration Statement shall become effective or any amendment or supplement to the Prospectus shall have been filed, (ii) of the receipt of any comments from the Commission, (iii) of any request by the Commission for any amendment to the Registration Statement or any amendment or supplement to the Prospectus or for additional information, (iv) of the issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement or any post-effective amendment or of any order preventing or suspending the use of any preliminary prospectus or the Prospectus, or of the suspension of the qualification of the Securities for offering or sale in any jurisdiction, or of the initiation or threatening of any proceedings for any of such purposes or of any examination pursuant to Section 8(d) or 8(e) of the 1933 Act concerning the Registration Statement and (v) if the Company becomes the subject of a proceeding under Section 8A of the 1933 Act in connection with the offering of the Securities. The Company will effect all filings required under Rule 424(b), in the manner and within the time period required by Rule 424(b) (without reliance on Rule 424(b)(8)), and will take such steps as it deems necessary to ascertain promptly whether the form of prospectus transmitted for filing under Rule 424(b) was received for filing by the Commission and, in the event that it was not, it will promptly file such prospectus. The Company will make every reasonable effort to prevent the issuance of any stop order, prevention or suspension and, if any such order is issued, to obtain the lifting thereof at the earliest possible moment.

(b) *Continued Compliance with Securities Laws*. The Company will comply with the 1933 Act and the 1933 Act Regulations so as to permit the completion of the distribution of the Securities as contemplated in this Agreement and in the Registration Statement, the General Disclosure Package and the Prospectus. If at any time when a prospectus relating to the Securities is (or, but for the exception afforded by Rule 172 of the 1933 Act Regulations ("Rule 172"), would be) required by the 1933 Act to be delivered in connection with sales of the Securities, any event shall occur or condition shall exist as a result of which it is necessary, in the opinion of counsel for the Underwriters or for the Company, to (i) amend the Registration Statement in order that the Registration Statement will not include an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading, (ii) amend or supplement the General Disclosure Package or the Prospectus in order that the General Disclosure Package or the Prospectus, as the case may be, will not include any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein not misleading in the light of the circumstances existing at the time it is delivered to a purchaser or (iii) amend the Registration Statement or amend or supplement the General Disclosure Package or the Prospectus, as the case may be, in order to comply with the requirements of the 1933 Act or the 1933 Act Regulations, the Company will promptly (A) give the Representatives notice of such event, (B) prepare any amendment or supplement as may be necessary to correct such statement or omission or to make the

Registration Statement, the General Disclosure Package or the Prospectus comply with such requirements and, a reasonable amount of time prior to any proposed filing or use, furnish the Representatives with copies of any such amendment or supplement and (C) file with the Commission any such amendment or supplement; provided that the Company shall not file or use any such amendment or supplement to which the Representatives or counsel for the Underwriters shall reasonably object in a timely manner. The Company will furnish to the Underwriters such number of copies of such amendment or supplement as the Underwriters may reasonably request. The Company has given the Representatives notice of any filings made pursuant to the 1934 Act or 1934 Act Regulations within 48 hours prior to the Applicable Time; the Company will give the Representatives notice of its intention to make any such filing from the Applicable Time to the Closing Time and will furnish the Representatives with copies of any such documents a reasonable amount of time prior to such proposed filing, as the case may be, and will not file or use any such document to which the Representatives or counsel for the Underwriters shall reasonably object.

(c) *Delivery of Registration Statements*. The Company has furnished or will deliver, upon request, to the Representatives and counsel for the Underwriters, without charge, signed copies of the Registration Statement as originally filed and each amendment thereto (including exhibits filed therewith) and signed copies of all consents and certificates of experts, and will also deliver to the Representatives, without charge, a conformed copy of the Registration Statement as originally filed and each amendment thereto (without exhibits) for each of the Underwriters. The copies of the Registration Statement and each amendment thereto furnished to the Underwriters will be identical to the electronically transmitted copies thereof filed with the Commission pursuant to EDGAR, except to the extent permitted by Regulation S-T.

(d) *Delivery of Prospectuses*. The Company has delivered to each Underwriter, without charge, as many copies of each preliminary prospectus as such Underwriter reasonably requested, and the Company hereby consents to the use of such copies for purposes permitted by the 1933 Act. The Company will furnish to each Underwriter, without charge, during the period when a prospectus relating to the Securities is (or, but for the exception afforded by Rule 172, would be) required to be delivered under the 1933 Act, such number of copies of the Prospectus (as amended or supplemented) as such Underwriter may reasonably request. The Prospectus and any amendments or supplements thereto furnished to the Underwriters will be identical to the electronically transmitted copies thereof filed with the Commission pursuant to EDGAR, except to the extent permitted by Regulation S-T.

(e) *Blue Sky Qualifications*. The Company will use its reasonable best efforts, in cooperation with the Underwriters, to qualify the Securities for offering and sale under the applicable securities laws of such states and other jurisdictions (domestic or foreign) as the Representatives may reasonably designate and to maintain such qualifications in effect so long as required to complete the distribution of the Securities; provided, however, that the Company shall not be obligated to file any general consent to service of process or to qualify as a foreign corporation or as a dealer in securities in any jurisdiction in which it is not so qualified or to subject itself to taxation in respect of doing business in any jurisdiction in which it is not otherwise so subject.

(f) *Rule 158*. The Company will timely file such reports pursuant to the 1934 Act as are necessary in order to make generally available to its securityholders (which may be satisfied by filing with the Commission pursuant to EDGAR) as soon as practicable an earnings statement for the purposes of, and to provide to the Underwriters the benefits contemplated by, the last paragraph of Section 11(a) of the 1933 Act.

(g) *Use of Proceeds*. The Company will use the net proceeds received by it from the sale of the Securities in all material respects in the manner specified in the Registration Statement, the General Disclosure Package and the Prospectus under “Use of Proceeds.”

(h) *Listing*. The Company will use its reasonable best efforts to effect and maintain the listing of the Securities on the Nasdaq Global Select Market.

(i) *Restriction on Sale of Securities*. During a period of 180 days from the date of the Prospectus, the Company will not, without the prior written consent of BofA and Piper Sandler, (i) directly or indirectly, offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase or otherwise transfer or dispose of any shares of Common Stock or any securities convertible into or exercisable or exchangeable for Common Stock or file or confidentially submit any registration statement under the 1933 Act with respect to any of the foregoing or (ii) enter into any swap or any other agreement or any transaction that transfers, in whole or in part, directly or indirectly, the economic consequence of ownership of the Common Stock, whether any such swap or transaction described in clause (i) or (ii) above is to be settled by delivery of Common Stock or other securities, in cash or otherwise. The foregoing sentence shall not apply to (A) the Securities to be sold hereunder, (B) the issuance and sale of any shares of Common Stock or any securities convertible into or exercisable or exchangeable for shares of Common Stock pursuant to any existing employee benefit or equity incentive plan, employee stock purchase plan, stock bonus plan, non-employee director stock plan, or other plan or arrangement of the Company (each, a "Company Plan") referred to in the Registration Statement, the General Disclosure Package and the Prospectus, (C) the issuance of shares of Common Stock issuable upon the conversion of securities or the exercise of warrants or options outstanding at the Applicable Time, or issued thereafter pursuant to a Company Plan, (E) the filing of one or more registration statements on Form S-8 relating to any Company Plan; and (E) the issuance of shares of Common Stock, or any securities convertible into or exercisable or exchangeable for shares of Common Stock, or enter into an agreement to issue shares of Common Stock, or any securities convertible into or exercisable or exchangeable for shares of Common Stock, in connection with any merger, joint venture, strategic alliance, commercial or other collaborative transaction, or the acquisition or license of the business, property, technology or other assets of another individual or entity, or the assumption of an employee benefit plan in connection with such a merger or acquisition, provided, however, that the aggregate number of shares of Common Stock, or any securities convertible into or exercisable for shares of Common Stock, that the Company may issue or agree to issue pursuant to this clause (E) shall not exceed 5.0% of the total outstanding shares of Common Stock immediately following the issuance of the Securities, and provided, further, that the recipients of such securities provide to the Representatives a duly executed lock-up letter in the form described in Section 3(j) hereof.

(j) If BofA and Piper Sandler, in their sole discretion, agree to release or waive the restrictions set forth in a lock-up agreement described in Section 5(j) hereof for an officer or director of the Company and provide the Company with notice of the impending release or waiver at least three business days before the effective date of the release or waiver, the Company agrees to announce the impending release or waiver by a press release substantially in the form of Exhibit B hereto through a major news service or by other means reasonably satisfactory to BofA and Piper Sandler at least two business days before the effective date of the release or waiver.

(k) *Reporting Requirements*. The Company, during the period when a Prospectus relating to the Securities is (or, but for the exception afforded by Rule 172, would be) required to be delivered under the 1933 Act, will file all documents required to be filed with the Commission pursuant to the 1934 Act within the time periods required by the 1934 Act and 1934 Act Regulations.

(l) *Issuer Free Writing Prospectuses*. The Company agrees that, unless it obtains the prior written consent of the Representatives, it will not make any offer relating to the Securities that would constitute an Issuer Free Writing Prospectus or that would otherwise constitute a "free writing prospectus," or a portion thereof, required to be filed by the Company with the Commission or retained by the Company under Rule 433; provided that the Representatives will be deemed to have consented to the Issuer Free

Writing Prospectuses listed on Schedule B-2 hereto and any "road show that is a written communication" within the meaning of Rule 433(d)(8)(i) that has been reviewed by the Representatives. The Company represents that it has treated or agrees that it will treat each such free writing prospectus consented to, or deemed consented to, by the Representatives as an "issuer free writing prospectus," as defined in Rule 433, and that it has complied and will comply with the applicable requirements of Rule 433 with respect thereto, including timely filing with the Commission where required, legending and record keeping. If at any time following issuance of an Issuer Free Writing Prospectus there occurred or occurs an event or development as a result of which such Issuer Free Writing Prospectus conflicted or would conflict with the information contained in the Registration Statement, any preliminary prospectus or the Prospectus or included or would include an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances existing at that subsequent time, not misleading, the Company will promptly notify the Representatives and will promptly amend or supplement, at its own expense, such Issuer Free Writing Prospectus to eliminate or correct such conflict, untrue statement or omission; provided, however, that the Company shall not be required to notify the Representatives of any statements or omissions in an Issuer Free Writing Prospectus prepared or authorized by the Company made in reliance upon and in conformity with the Underwriter Information.

(m) *Certification Regarding Beneficial Owners*. The Company will deliver to the Representatives, on the date of execution of this Agreement, a properly completed and executed Certification Regarding Beneficial Owners of Legal Entity Customers, together with copies of identifying documentation, and the Company undertakes to provide such additional supporting documentation as the Representatives may reasonably request in connection with the verification of the foregoing certification.

(n) *Compliance with FINRA Rules*. The Company hereby agrees that it will ensure that the Reserved Securities will be restricted as required by FINRA or the FINRA rules from sale, transfer, assignment, pledge or hypothecation for a period of three months following the date of this Agreement. Merrill Lynch will notify the Company as to which persons will need to be so restricted. Should the Company release, or seek to release, from such restrictions any of the Reserved Securities, the Company agrees to reimburse the Underwriters and Merrill Lynch for any reasonable expenses (including, without limitation, legal expenses) they incur in connection with such release.

(o) *Testing-the-Waters Materials.* If at any time following the distribution of any Written Testing-the-Waters Communication there occurred or occurs an event or development as a result of which such Written Testing-the-Waters Communication included or would include an untrue statement of a material fact or omitted or would omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances existing at that subsequent time, not misleading, the Company will promptly notify the Representatives and will promptly amend or supplement, at its own expense, such Written Testing-the-Waters Communication to eliminate or correct such untrue statement or omission.

(p) *Emerging Growth Company Status.* The Company will promptly notify the Representatives if the Company ceases to be an Emerging Growth Company at any time prior to the later of (i) completion of the distribution of the Securities within the meaning of the 1933 Act and (ii) completion of the 180-day restricted period referred to in Section 3(i).

SECTION 4. Payment of Expenses.

(a) *Expenses*. The Company will pay or cause to be paid all expenses incident to the performance of its obligations under this Agreement, including (i) the preparation, printing and filing of the Registration Statement (including financial statements and exhibits) as originally filed and each amendment

thereto, (ii) the preparation, printing and delivery to the Underwriters of copies of each preliminary prospectus, each Issuer Free Writing Prospectus and the Prospectus and any amendments or supplements thereto and any costs associated with electronic delivery of any of the foregoing by the Underwriters to investors, (iii) the preparation, issuance and delivery of the certificates or security entitlements for the Securities to the Underwriters, including any stock or other transfer taxes and any stamp or other duties payable upon the sale, issuance or delivery of the Securities to the Underwriters, (iv) the fees and disbursements of the Company's counsel, accountants and other advisors, (v) the qualification of the Securities under securities laws in accordance with the provisions of Section 3(e) hereof, including filing fees and the reasonable fees and disbursements of counsel for the Underwriters in connection therewith and in connection with the preparation of the Blue Sky Survey and any supplement thereto, (vi) the fees and expenses of any transfer agent or registrar for the Securities, (vii) all reasonable costs and expenses of Merrill Lynch, including the reasonable fees and disbursements of counsel for Merrill Lynch, in connection with matters related to the Reserved Securities which are designated by the Company for sale to Invitees, (viii) the costs and expenses of the Company relating to investor presentations on any "road show" undertaken in connection with the marketing of the Securities, including without limitation, expenses associated with the production of road show slides and graphics, fees and expenses of any consultants engaged in connection with the road show presentations, travel and lodging expenses of the representatives and officers of the Company and any such consultants, and the cost of aircraft and other transportation chartered in connection with the road show, provided, however, that if the Representatives and the Company mutually agree that an aircraft shall be chartered in connection with any road show, the Company shall be responsible for fifty percent (50%) of the costs and expenses of such chartered aircraft and the Underwriters shall be responsible for the remaining fifty percent (50%) of such costs and expense, (ix) the filing fees incident to, and the reasonable fees and disbursements of counsel to the Underwriters in connection with, the review by FINRA of the terms of the sale of the Securities, (x) the fees and expenses incurred in connection with the listing of the Securities on the Nasdaq Global Select Market and (xi) the costs and expenses (including, without limitation, any damages or other amounts payable in connection with legal or contractual liability) associated with the reforming of any contracts for sale of the Securities made by the Underwriters caused by a breach of the representation contained in the third sentence of Section 1(a)(ii); provided, however, that the fees and expenses of counsel for the Underwriters incurred pursuant to clauses (v) and (ix) of this Section 4(a) shall not exceed $40,000 in the aggregate.

(b) *Termination of Agreement*. If this Agreement is terminated by the Representatives in accordance with the provisions of Section 5, Section 9(a)(i) or (iii) or Section 10 hereof, the Company shall reimburse the Underwriters for all of their reasonable and documented out-of-pocket expenses actually incurred, including the reasonable and documented fees and disbursements of counsel for the Underwriters; provided, however, that if this Agreement is terminated pursuant to Section 10, the Company shall only be required to reimburse the reasonable and documented out-of-pocket expenses (including the reasonable and documented fees and disbursement of counsel for the Underwriters) of the Underwriters that have not failed to purchase the Securities that they have agreed to purchase hereunder.

SECTION 5. Conditions of Underwriters' Obligations. The obligations of the several Underwriters hereunder are subject to the accuracy of the representations and warranties of the Company contained herein or in certificates of any officer of the Company or any of its subsidiaries delivered pursuant to the provisions hereof, to the performance by the Company of its covenants and other obligations hereunder, and to the following further conditions:

(a) *Effectiveness of Registration Statement; Rule 430A Information*. The Registration Statement, including any Rule 462(b) Registration Statement, has become effective and, at the Closing Time, no stop order suspending the effectiveness of the Registration Statement or any post-effective amendment thereto has been issued under the 1933 Act, no order preventing or suspending the use of any preliminary prospectus or the Prospectus has been issued and no proceedings for any of those purposes have been instituted or are pending or, to the Company's knowledge, contemplated; and the Company has complied with each request (if any) from the Commission for additional information. A prospectus

containing the Rule 430A Information shall have been filed with the Commission in the manner and within the time frame required by Rule 424(b) without reliance on Rule 424(b)(8) or a post-effective amendment providing such information shall have been filed with, and declared effective by, the Commission in accordance with the requirements of Rule 430A.

(b) *Opinion of Counsel for Company*. At the Closing Time, the Representatives shall have received the opinion and negative assurance letter, dated the Closing Time, of Cooley LLP ("Cooley"), counsel for the Company, in form and substance reasonably satisfactory to the Representatives and counsel to the Underwriters.

(c) *Opinion of Intellectual Property Counsel for Company*. At the Closing Time, the Representatives shall have received the opinion, dated the Closing Time, of Cooley, intellectual property counsel for the Company, in form and substance reasonably satisfactory to the Representatives and counsel to the Underwriters.

(d) *Opinion of Counsel for Underwriters*. At the Closing Time, the Representatives shall have received the opinion and negative assurance letter, dated the Closing Time, of Latham & Watkins LLP, counsel for the Underwriters, in form and substance reasonably satisfactory to the Representatives. In giving such opinion such counsel may rely, as to all matters governed by the laws of jurisdictions other than the law of the State of New York, the General Corporation Law of the State of Delaware and the federal securities laws of the United States, upon the opinions of counsel satisfactory to the Representatives. Such counsel may also state that, insofar as such opinion involves factual matters, they have relied, to the extent they deem proper, upon certificates of officers and other representatives of the Company and its subsidiaries and certificates of public officials.

(e) *Officers' Certificate*. At the Closing Time, there shall not have been, since the date hereof or since the respective dates as of which information is given in the Registration Statement, the General Disclosure Package or the Prospectus, any material adverse change in the condition, financial or otherwise, or in the earnings, business affairs or business prospects of the Company and its subsidiaries considered as one enterprise, whether or not arising in the ordinary course of business, and the Representatives shall have received a certificate of the Chief Executive Officer or the President of the Company and of the Chief Financial or Chief Accounting Officer of the Company, dated the Closing Time, to the effect that (i) there has been no such material adverse change, (ii) the representations and warranties of the Company in this Agreement are true and correct with the same force and effect as though expressly made at and as of the Closing Time, (iii) the Company has complied in all material respects with all agreements and satisfied all conditions on its part to be performed or satisfied at or prior to the Closing Time, and (iv) no stop order suspending the effectiveness of the Registration Statement under the 1933 Act has been issued, no order preventing or suspending the use of any preliminary prospectus or the Prospectus has been issued and no proceedings for any of those purposes have been instituted or are pending or, to their knowledge, contemplated.

(f) *Accountant's Comfort Letter*. At the time of the execution of this Agreement, the Representatives shall have received from PricewaterhouseCoopers LLP ("PwC") a letter, dated such date, in form and substance reasonably satisfactory to the Representatives, together with signed or reproduced copies of such letter for each of the other Underwriters containing statements and information of the type ordinarily included in accountants' "comfort letters" to underwriters with respect to the financial statements and certain financial information contained in the Registration Statement, the General Disclosure Package and the Prospectus.

(g) *Chief Financial Officer's Certificate*. At the time of the execution of this Agreement and at the Closing Time, the Representatives shall have received from the Company a certificate of the Chief Financial Officer of the Company with respect to certain financial data contained in the Registration Statement, the General Disclosure Package and the Prospectus, providing "management comfort" with respect to such information, in form and substance reasonably satisfactory to the Representatives.

(h) *Bring-down Comfort Letter*. At the Closing Time, the Representatives shall have received from PwC a letter, dated as of the Closing Time, to the effect that they reaffirm the statements made in the

letter furnished pursuant to subsection (f) of this Section, except that the specified date referred to shall be a date not more than three business days prior to the Closing Time.

(i) *Approval of Listing*. At the Closing Time, the Securities shall have been approved for listing on the Nasdaq Global Select Market, subject only to official notice of issuance.

(j) *No Objection*. FINRA has confirmed that it has not raised any objection with respect to the fairness and reasonableness of the underwriting terms and arrangements relating to the offering of the Securities.

(k) *Lock-up Agreements*. At the date of this Agreement, BofA and Piper Sandler shall have received an agreement substantially in the form of Exhibit A hereto signed by each of the Company's officers and directors and substantially all holders of the Company's equity securities.

(l) *Maintenance of Rating*. Neither the Company nor its subsidiaries have any debt securities or preferred stock that are rated by any "nationally recognized statistical rating organization" (as defined in Section 3(a)(62) of the 1934 Act).

(m) *Conditions to Purchase of Option Securities*. In the event that the Underwriters exercise their option provided in Section 2(b) hereof to purchase all or any portion of the Option Securities, the representations and warranties of the Company contained herein and the statements in any certificates furnished by the Company and any of its subsidiaries hereunder shall be true and correct as of each Date of Delivery and, at the relevant Date of Delivery, the Representatives shall have received:

(i) Officers' Certificate. A certificate, dated such Date of Delivery, of the Chief Executive Officer or the President of the Company and of the Chief Financial or Chief Accounting Officer of the Company confirming that the certificate delivered at the Closing Time pursuant to Section 5(d) hereof remains true and correct as of such Date of Delivery.

(ii) Opinion of Counsel for Company. If requested by the Representatives, the opinion of Cooley, counsel for the Company, together with the opinion of Cooley, intellectual property counsel for the Company, each in form and substance reasonably satisfactory to counsel for the Underwriters, dated such Date of Delivery, relating to the Option Securities to be purchased on such Date of Delivery and otherwise to the same effect as the opinions required by Sections 5(b) and (c) hereof.

(iii) Opinion of Counsel for Underwriters. If requested by the Representatives, the opinion of Latham & Watkins LLP, counsel for the Underwriters, dated such Date of Delivery, relating to the Option Securities to be purchased on such Date of Delivery and otherwise to the same effect as the opinion required by Section 5(d) hereof.

(iv) Bring-down Comfort Letter. If requested by the Representatives, a letter from PwC, in form and substance satisfactory to the Representatives and dated such Date of Delivery, substantially in the same form and substance as the letter furnished to the Representatives pursuant to Section 5(f) hereof, except that the "specified date" in the letter furnished pursuant to this paragraph shall be a date not more than three business days prior to such Date of Delivery.

(n) *Additional Documents*. At the Closing Time and at each Date of Delivery (if any) counsel for the Underwriters shall have been furnished with such customary documents and opinions as they may reasonably require for the purpose of enabling them to pass upon the issuance and sale of the Securities as herein contemplated, or in order to evidence the accuracy of any of the representations or warranties, or the

fulfillment of any of the conditions, herein contained; and all proceedings taken by the Company in connection with the issuance and sale of the Securities as herein contemplated shall be reasonably satisfactory in form and substance to the Representatives and counsel for the Underwriters.

(o) *Termination of Agreement*. If any condition specified in this Section shall not have been fulfilled when and as required to be fulfilled, this Agreement, or, in the case of any condition to the purchase of Option Securities on a Date of Delivery which is after the Closing Time, the obligations of the several Underwriters to purchase the relevant Option Securities, may be terminated by the Representatives by notice to the Company at any time at or prior to Closing Time or such Date of Delivery, as the case may be, and such termination shall be without liability of any party to any other party except as provided in Section 4 and except that Sections 1, 6, 7, 8, 14, 15, 16 and 17 shall survive any such termination and remain in full force and effect.

SECTION 6. Indemnification.

(a) *Indemnification of Underwriters*. The Company agrees to indemnify and hold harmless each Underwriter, its affiliates (as such term is defined in Rule 501(b) under the 1933 Act (each, an "Affiliate")), its selling agents and each person, if any, who controls any Underwriter within the meaning of Section 15 of the 1933 Act or Section 20 of the 1934 Act as follows:

(i) against any and all loss, liability, claim, damage and expense whatsoever, as incurred, arising out of any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement (or any amendment thereto), including the Rule 430A Information, or the omission or alleged omission therefrom of a material fact required to be stated therein or necessary to make the statements therein not misleading or arising out of any untrue statement or alleged untrue statement of a material fact included (A) in any preliminary prospectus, any Issuer Free Writing Prospectus, any Written Testing-the-Waters Communication, the General Disclosure Package or the Prospectus (or any amendment or supplement thereto), or (B) in any materials or information provided to investors by, or with the approval of, the Company in connection with the marketing of the offering of the Securities ("Marketing Materials"), including any roadshow or investor presentations made to investors by the Company (whether in person or electronically), or the omission or alleged omission in any preliminary prospectus, Issuer Free Writing Prospectus, any Written Testing-the-Waters Communication, Prospectus or in any Marketing Materials of a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading;

(ii) against any and all loss, liability, claim, damage and expense whatsoever, as incurred, to the extent of the aggregate amount paid in settlement of any litigation, or any investigation or proceeding by any Governmental Entity, commenced or threatened, or of any claim whatsoever based upon any such untrue statement or omission, or any such alleged untrue statement or omission; provided that (subject to Section 6(d) below) any such settlement is effected with the written consent of the Company;

(iii) against any and all expense whatsoever, as incurred (including the fees and disbursements of counsel chosen by the Representatives), reasonably incurred in investigating, preparing or defending against any litigation, or any investigation or proceeding by any Governmental Entity, commenced or threatened, or any claim whatsoever based upon any such untrue statement or omission, or any such alleged untrue statement or omission, to the extent that any such expense is not paid under (i) or (ii) above;

provided, however, that this indemnity agreement shall not apply to any loss, liability, claim, damage or expense to the extent arising out of any untrue statement or omission or alleged untrue statement or omission made in the Registration Statement (or any amendment thereto), including the Rule 430A Information, the General Disclosure Package or the Prospectus (or any amendment or supplement thereto) in reliance upon and in conformity with the Underwriter Information.

(b) *Indemnification of Company, Directors and Officers*. Each Underwriter severally agrees to indemnify and hold harmless the Company, its directors, each of its officers who signed the Registration Statement, and each person, if any, who controls the Company within the meaning of Section 15 of the 1933 Act or Section 20 of the 1934 Act, against any and all loss, liability, claim, damage and expense described in the indemnity contained in subsection (a) of this Section, as incurred, but only with respect to untrue statements or omissions, or alleged untrue statements or omissions, made in the Registration Statement (or any amendment thereto), including the Rule 430A Information, the General Disclosure Package or the Prospectus (or any amendment or supplement thereto) in reliance upon and in conformity with the Underwriter Information.

(c) *Actions against Parties; Notification*. Each indemnified party shall give notice as promptly as reasonably practicable to each indemnifying party of any action commenced against it in respect of which indemnity may be sought hereunder, but failure to so notify an indemnifying party shall not relieve such indemnifying party from any liability hereunder to the extent it is not materially prejudiced as a result thereof and in any event shall not relieve it from any liability which it may have otherwise than on account of this indemnity agreement. In the case of parties indemnified pursuant to Section 6(a) above, counsel to the indemnified parties shall be selected by the Representatives, and, in the case of parties indemnified pursuant to Section 6(b) above, counsel to the indemnified parties shall be selected by the Company. An indemnifying party may participate at its own expense in the defense of any such action; provided, however, that counsel to the indemnifying party shall not (except with the consent of the indemnified party) also be counsel to the indemnified party. In no event shall the indemnifying parties be liable for fees and expenses of more than one counsel (in addition to any local counsel) separate from their own counsel for all indemnified parties in connection with any one action or separate but similar or related actions in the same jurisdiction arising out of the same general allegations or circumstances. No indemnifying party shall, without the prior written consent of the indemnified parties, settle or compromise or consent to the entry of any judgment with respect to any litigation, or any investigation or proceeding by any governmental agency or body, commenced or threatened, or any claim whatsoever in respect of which indemnification or contribution could be sought under this Section 6 or Section 7 hereof (whether or not the indemnified parties are actual or potential parties thereto), unless such settlement, compromise or consent (i) includes an unconditional release of each indemnified party from all liability arising out of such litigation, investigation, proceeding or claim and (ii) does not include a statement as to or an admission of fault, culpability or a failure to act by or on behalf of any indemnified party.

(d) *Settlement without Consent if Failure to Reimburse*. If at any time an indemnified party shall have requested an indemnifying party to reimburse the indemnified party for fees and expenses of counsel, such indemnifying party agrees that it shall be liable for any settlement of the nature contemplated by Section 6(a)(ii) effected without its written consent if (i) such settlement is entered into more than 45 days after receipt by such indemnifying party of the aforesaid request, (ii) such indemnifying party shall have received notice of the terms of such settlement at least 30 days prior to such settlement being entered into and (iii) such indemnifying party shall not have reimbursed such indemnified party in accordance with such request prior to the date of such settlement.

(e) *Indemnification for Reserved Securities*. In connection with the offer and sale of the Reserved Securities, the Company agrees to indemnify and hold harmless the Underwriters and Merrill Lynch, their Affiliates and selling agents and each person, if any, who controls any Underwriter or

Merrill Lynch within the meaning of either Section 15 of the 1933 Act or Section 20 of the 1934 Act, from and against any and all loss, liability, claim, damage and expense (including, without limitation, any legal or other expenses reasonably incurred in connection with defending, investigating or settling any such action or claim), as incurred, (i) arising out of the violation of any applicable laws or regulations of foreign jurisdictions where Reserved Securities have been offered, (ii) arising out of any untrue statement or alleged untrue statement of a material fact contained in any other material prepared by or with the consent of the Company for distribution to Invitees in connection with the offering of the Reserved Securities or caused by any omission or alleged omission to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, (iii) caused by the failure of any Invitee to pay for and accept delivery of Reserved Securities which have been orally confirmed for purchase by any Invitee by 11:59 P.M. (New York City time) on the date of the Agreement or (iv) related to, or arising out of or in connection with, the offering of the Reserved Securities; *provided* that no indemnification shall be available under this section for any loss, liability, claim, damage or expense which shall have been finally judicially determined by a court of competent jurisdiction to have been caused primarily by the gross negligence or willful misconduct of BofA or any of its affiliates. The Company shall reimburse the Underwriters promptly upon demand for any legal or other expenses reasonably incurred by them in connection with investigating or defending or preparing to defend against any such loss, liability, claim, damage or expense as such expenses are incurred.

SECTION 7. Contribution. If the indemnification provided for in Section 6 hereof is for any reason unavailable to or insufficient to hold harmless an indemnified party in respect of any losses, liabilities, claims, damages or expenses referred to therein, then each indemnifying party shall contribute to the aggregate amount of such losses, liabilities, claims, damages and expenses incurred by such indemnified party, as incurred, (i) in such proportion as is appropriate to reflect the relative benefits received by the Company, on the one hand, and the Underwriters, on the other hand, from the offering of the Securities pursuant to this Agreement or (ii) if the allocation provided by clause (i) is not permitted by applicable law, in such proportion as is appropriate to reflect not only the relative benefits referred to in clause (i) above but also the relative fault of the Company, on the one hand, and of the Underwriters, on the other hand, in connection with the statements or omissions, or in connection with any violation of the nature referred to in Section 6(e) hereof, which resulted in such losses, liabilities, claims, damages or expenses, as well as any other relevant equitable considerations.

The relative benefits received by the Company, on the one hand, and the Underwriters, on the other hand, in connection with the offering of the Securities pursuant to this Agreement shall be deemed to be in the same respective proportions as the total net proceeds from the offering of the Securities pursuant to this Agreement (before deducting expenses) received by the Company, on the one hand, and the total underwriting discounts and commissions received by the Underwriters, on the other hand, in each case as set forth on the cover of the Prospectus, bear to the aggregate initial public offering price of the Securities as set forth on the cover of the Prospectus.

The relative fault of the Company, on the one hand, and the Underwriters, on the other hand, shall be determined by reference to, among other things, whether any such untrue or alleged untrue statement of a material fact or omission or alleged omission to state a material fact relates to information supplied by the Company or by the Underwriters and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such statement or omission or any violation of the nature referred to in Section 6(e).

The Company and the Underwriters agree that it would not be just and equitable if contribution pursuant to this Section 7 were determined by pro rata allocation (even if the Underwriters were treated as one entity for such purpose) or by any other method of allocation which does not take account of the equitable considerations referred to above in this Section 7. The aggregate amount of losses, liabilities,

claims, damages and expenses incurred by an indemnified party and referred to above in this Section 7 shall be deemed to include any legal or other expenses reasonably incurred by such indemnified party in investigating, preparing or defending against any litigation, or any investigation or proceeding by any Governmental Entity, commenced or threatened, or any claim whatsoever based upon any such untrue or alleged untrue statement or omission or alleged omission.

Notwithstanding the provisions of this Section 7, no Underwriter shall be required to contribute any amount in excess of the underwriting commissions received by such Underwriter in connection with the Securities underwritten by it and distributed to the public.

No person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the 1933 Act) shall be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation.

For purposes of this Section 7, each person, if any, who controls an Underwriter within the meaning of Section 15 of the 1933 Act or Section 20 of the 1934 Act and each Underwriter's Affiliates and selling agents shall have the same rights to contribution as such Underwriter, and each director of the Company, each officer of the Company who signed the Registration Statement, and each person, if any, who controls the Company within the meaning of Section 15 of the 1933 Act or Section 20 of the 1934 Act shall have the same rights to contribution as the Company. The Underwriters' respective obligations to contribute pursuant to this Section 7 are several in proportion to the number of Initial Securities set forth opposite their respective names in Schedule A hereto and not joint.

SECTION 8. Representations, Warranties and Agreements to Survive. All representations, warranties and agreements contained in this Agreement or in certificates of officers of the Company or any of its subsidiaries submitted pursuant hereto, shall remain operative and in full force and effect regardless of (i) any investigation made by or on behalf of any Underwriter or its Affiliates or selling agents, any person controlling any Underwriter, its officers or directors or any person controlling the Company and (ii) delivery of and payment for the Securities.

SECTION 9. Termination of Agreement.

(a) *Termination*. The Representatives may terminate this Agreement, by notice to the Company, at any time at or prior to the Closing Time (i) if there has been, in the judgment of the Representatives, since the time of execution of this Agreement or since the respective dates as of which information is given in the Registration Statement, the General Disclosure Package or the Prospectus, any material adverse change in the condition, financial or otherwise, or in the earnings, business affairs or business prospects of the Company and its subsidiaries considered as one enterprise, whether or not arising in the ordinary course of business, or (ii) if there has occurred any material adverse change in the financial markets in the United States or the international financial markets, any outbreak of hostilities or escalation thereof or other calamity or crisis or any change or development involving a prospective change in national or international political, financial or economic conditions, in each case the effect of which is such as to make it, in the judgment of the Representatives, impracticable or inadvisable to proceed with the completion of the offering or to enforce contracts for the sale of the Securities, or (iii) (A) if trading in the Common Stock has been suspended by the Commission or the Nasdaq Global Select Market, or (B) if trading in securities generally on the NYSE American or the New York Stock Exchange or in the Nasdaq Global Select Market has been suspended or materially limited, or minimum or maximum prices for trading have been fixed, or maximum ranges for prices have been required, by any of said exchanges or by order of the Commission, FINRA or any other governmental authority, or (iv) a material disruption has occurred in commercial banking or securities settlement or clearance services in the United States, or (v) if a banking moratorium has been declared by either Federal or New York authorities.

(b) *Liabilities*. If this Agreement is terminated pursuant to this Section, such termination shall be without liability of any party to any other party except as provided in Section 4 hereof, and provided further that Sections 1, 6, 7, 8, 14, 15, 16 and 17 shall survive such termination and remain in full force and effect.

SECTION 10. Default by One or More of the Underwriters. If one or more of the Underwriters shall fail at the Closing Time or a Date of Delivery to purchase the Securities which it or they are obligated to purchase under this Agreement (the "Defaulted Securities"), the Representatives shall have the right, within 24 hours thereafter, to make arrangements for one or more of the non-defaulting Underwriters, or any other underwriters, to purchase all, but not less than all, of the Defaulted Securities in such amounts as may be agreed upon and upon the terms herein set forth; if, however, the Representatives shall not have completed such arrangements within such 24-hour period, then:

(i) if the number of Defaulted Securities does not exceed 10% of the number of Securities to be purchased on such date, each of the non-defaulting Underwriters shall be obligated, severally and not jointly, to purchase the full amount thereof in the proportions that their respective underwriting obligations hereunder bear to the underwriting obligations of all non-defaulting Underwriters, or

(ii) if the number of Defaulted Securities exceeds 10% of the number of Securities to be purchased on such date, this Agreement or, with respect to any Date of Delivery which occurs after the Closing Time, the obligation of the Underwriters to purchase, and the Company to sell, the Option Securities to be purchased and sold on such Date of Delivery shall terminate without liability on the part of any non-defaulting Underwriter.

No action taken pursuant to this Section shall relieve any defaulting Underwriter from liability in respect of its default.

In the event of any such default which does not result in a termination of this Agreement or, in the case of a Date of Delivery which is after the Closing Time, which does not result in a termination of the obligation of the Underwriters to purchase and the Company to sell the relevant Option Securities, as the case may be, either the (i) Representatives or (ii) the Company shall have the right to postpone Closing Time or the relevant Date of Delivery, as the case may be, for a period not exceeding seven days in order to effect any required changes in the Registration Statement, the General Disclosure Package or the Prospectus or in any other documents or arrangements. As used herein, the term "Underwriter" includes any person substituted for an Underwriter under this Section 10.

SECTION 11. Notices. All notices and other communications hereunder shall be in writing and shall be deemed to have been duly given if mailed or transmitted by any standard form of telecommunication. Notices to the Underwriters shall be directed to BofA at One Bryant Park, New York, New York 10036, attention of Syndicate Department (facsimile: (646) 855-3073), with a copy to ECM Legal (facsimile: (212) 230-8730), Piper Sandler & Co., 800 Nicollet Mall, Minneapolis, Minnesota 55402, to the attention of Equity Capital Markets and separately, General Counsel, William Blair & Company, L.L.C., 150 North Riverside Plaza, Chicago, IL 60606, Attention: General Counsel, Facsimile: (312) 551-4646; and to Latham & Watkins LLP, 12670 High Bluff Drive, San Diego, CA 92130, Attention: Cheston Larson, email: cheston.larson@lw.com; notices to the Company shall be directed to Poseida Therapeutics, Inc., 9390 Towne Centre Drive, Suite 200, San Diego, CA 92121, Attention: Mark J. Gergen, email: mgergen@poseida.com, with a copy to Cooley LLP, 4401 Eastgate Mall, San Diego, CA 92121, Attention: Sean Clayton, email: sclayton@cooley.com.

SECTION 12. No Advisory or Fiduciary Relationship. The Company acknowledges and agrees that (a) the purchase and sale of the Securities pursuant to this Agreement, including the determination of the initial public offering price of the Securities and any related discounts and commissions, is an arm's-length commercial transaction between the Company, on the one hand, and the several Underwriters, on the other hand, (b) in connection with the offering of the Securities and the process leading thereto, each Underwriter is and has been acting solely as a principal and is not the agent or fiduciary of the Company, any of its subsidiaries or their respective stockholders, creditors, employees or any other party, (c) no Underwriter has assumed or will assume an advisory or fiduciary responsibility in favor of the Company with respect to the offering of the Securities or the process leading thereto (irrespective of whether such Underwriter has advised or is currently advising the Company or any of its subsidiaries on other matters) and no Underwriter has any obligation to the Company with respect to the offering of the Securities except the obligations expressly set forth in this Agreement, (d) the Underwriters and their respective affiliates may be engaged in a broad range of transactions that involve interests that differ from those of the Company and (e) the Underwriters have not provided any legal, accounting, regulatory or tax advice with respect to the offering of the Securities and the Company has consulted its own respective legal, accounting, regulatory and tax advisors to the extent it deemed appropriate.

SECTION 13. Recognition of the U.S. Special Resolution Regimes.

(a) In the event that any Underwriter that is a Covered Entity becomes subject to a proceeding under a U.S. Special Resolution Regime, the transfer from such Underwriter of this Agreement, and any interest and obligation in or under this Agreement, will be effective to the same extent as the transfer would be effective under the U.S. Special Resolution Regime if this Agreement, and any such interest and obligation, were governed by the laws of the United States or a state of the United States.

(b) In the event that any Underwriter that is a Covered Entity or a BHC Act Affiliate of such Underwriter becomes subject to a proceeding under a U.S. Special Resolution Regime, Default Rights under this Agreement that may be exercised against such Underwriter are permitted to be exercised to no greater extent than such Default Rights could be exercised under the U.S. Special Resolution Regime if this Agreement were governed by the laws of the United States or a state of the United States.

For purposes of this Section 13, a "BHC Act Affiliate" has the meaning assigned to the term "affiliate" in, and shall be interpreted in accordance with, 12 U.S.C. § 1841(k). "Covered Entity" means any of the following: (i) a "covered entity" as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 252.82(b); (ii) a "covered bank" as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 47.3(b); or (iii) a "covered FSI" as that term is defined in, and interpreted in accordance with, 12 C.F.R. § 382.2(b). **"**Default Right" has the meaning assigned to that term in, and shall be interpreted in accordance with, 12 C.F.R. §§ 252.81, 47.2 or 382.1, as applicable. "U.S. Special Resolution Regime" means each of (i) the Federal Deposit Insurance Act and the regulations promulgated thereunder and (ii) Title II of the Dodd-Frank Wall Street Reform and Consumer Protection Act and the regulations promulgated thereunder.

SECTION 14. Parties. This Agreement shall inure to the benefit of and be binding upon the Underwriters and the Company and their respective successors. Nothing expressed or mentioned in this Agreement is intended or shall be construed to give any person, firm or corporation, other than the Underwriters and the Company and their respective successors and the controlling persons and officers and directors referred to in Sections 6 and 7 and their heirs and legal representatives, any legal or equitable right, remedy or claim under or in respect of this Agreement or any provision herein contained. This Agreement and all conditions and provisions hereof are intended to be for the sole and exclusive benefit of the Underwriters and the Company and their respective successors, and said controlling persons and officers and directors and their heirs and legal representatives, and for the benefit of no other person, firm or corporation. No purchaser of Securities from any Underwriter shall be deemed to be a successor by reason merely of such purchase.

SECTION 15. Trial by Jury. The Company (on its behalf and, to the extent permitted by applicable law, on behalf of its stockholders and affiliates) and each of the Underwriters hereby irrevocably waives, to the fullest extent permitted by applicable law, any and all right to trial by jury in any legal proceeding arising out of or relating to this Agreement or the transactions contemplated hereby.

SECTION 16. GOVERNING LAW. THIS AGREEMENT AND ANY CLAIM, CONTROVERSY OR DISPUTE ARISING UNDER OR RELATED TO THIS AGREEMENT SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF, THE STATE OF NEW YORK WITHOUT REGARD TO ITS CHOICE OF LAW PROVISIONS.

SECTION 17. Consent to Jurisdiction; Waiver of Immunity. Any legal suit, action or proceeding arising out of or based upon this Agreement or the transactions contemplated hereby shall be instituted in (i) the federal courts of the United States of America located in the City and County of New York, Borough of Manhattan or (ii) the courts of the State of New York located in the City and County of New York, Borough of Manhattan (collectively, the "Specified Courts"), and each party irrevocably submits to the exclusive jurisdiction (except for proceedings instituted in regard to the enforcement of a judgment of any such court, as to which such jurisdiction is non-exclusive) of such courts in any such suit, action or proceeding. Service of any process, summons, notice or document by mail to such party's address set forth above shall be effective service of process for any suit, action or other proceeding brought in any such court. The parties irrevocably and unconditionally waive any objection to the laying of venue of any suit, action or other proceeding in the Specified Courts and irrevocably and unconditionally waive and agree not to plead or claim in any such court that any such suit, action or other proceeding brought in any such court has been brought in an inconvenient forum.

SECTION 18. TIME. TIME SHALL BE OF THE ESSENCE OF THIS AGREEMENT. EXCEPT AS OTHERWISE SET FORTH HEREIN, SPECIFIED TIMES OF DAY REFER TO NEW YORK CITY TIME.

SECTION 19. Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be deemed to be an original, but all such counterparts shall together constitute one and the same Agreement. Counterparts may be delivered via facsimile, electronic mail (including any electronic signature covered by the U.S. federal ESIGN Act of 2000, Uniform Electronic Transactions Act, the Electronic Signatures and Records Act or other applicable law, e.g., www.docusign.com) or other transmission method and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes.

SECTION 20. Effect of Headings. The Section headings herein are for convenience only and shall not affect the construction hereof.

If the foregoing is in accordance with your understanding of our agreement, please sign and return to the Company a counterpart hereof, whereupon this instrument, along with all counterparts, will become a binding agreement among the Underwriters and the Company in accordance with its terms.

Very truly yours,

POSEIDA THERAPEUTICS, INC.

By _____
Title:

CONFIRMED AND ACCEPTED,
as of the date first above written:

BOFA SECURITIES, INC.
PIPER SANDLER & CO.
WILLIAM BLAIR & COMPANY, L.L.C.

For themselves and as Representatives of the other Underwriters named in Schedule A hereto.

By: BOFA SECURITIES, INC.

By _____
Authorized Signatory

By: PIPER SANDLER & CO.

By _____
Authorized Signatory

By: WILLIAM BLAIR & COMPANY, L.L.C.

By _____
Authorized Signatory

SCHEDULE A

The initial public offering price per share for the Securities shall be $[●].

The purchase price per share for the Securities to be paid by the several Underwriters shall be $[●], being an amount equal to the initial public offering price set forth above less $[●] per share, subject to adjustment in accordance with Section 2(b) for dividends or distributions declared by the Company and payable on the Initial Securities but not payable on the Option Securities.

Name of Underwriter	Number of Initial Securities
BofA Securities, Inc.	[●]
Piper Sandler & Co.	[●]
William Blair & Company, L.L.C.	[●]
Total	[●]

SCHEDULE B-1

Pricing Terms

1. The Company is selling [●] shares of Common Stock.

2. The Company has granted an option to the Underwriters, severally and not jointly, to purchase up to an additional [●] shares of Common Stock.

3. The initial public offering price per share for the Securities shall be $[●].

SCHEDULE B-2

Free Writing Prospectuses

[SPECIFY EACH ISSUER GENERAL USE FREE WRITING PROSPECTUS]

SCHEDULE C

Testing-the-Waters Communications

Exhibit A

FORM OF LOCK-UP PURSUANT TO SECTION 5(I)

Lock-Up Agreement
Poseida Therapeutics, Inc.

, 2020

BofA Securities, Inc.,
Piper Sandler & Co.,
as Representatives of the several
Underwriters to be named in the
within-mentioned Underwriting Agreement

c/o BofA Securities, Inc.
One Bryant Park
New York, New York 10036

c/o Piper Sandler & Co.
1251 Avenue of the Americas, 6th Floor
New York, New York 10022

Re: Proposed Public Offering by Poseida Therapeutics, Inc.

Dear Sirs:

The undersigned, a security holder [and an officer and/or director] of Poseida Therapeutics, Inc., a Delaware corporation (the "Company"), understands that BofA Securities, Inc. ("BofAS") and Piper Sandler & Co. ("Piper Sandler" and, together with BofAS, the "Representatives") propose to enter into an Underwriting Agreement (the "Underwriting Agreement") with the Company providing for the public offering (the "Offering") of shares of the Company's common stock, par value $0.0001 per share (the "Common Stock"). In recognition of the benefit that the Offering will confer upon the undersigned as a security holder [and an officer and/or director] of the Company, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the undersigned agrees with each underwriter to be named in the Underwriting Agreement that, during the period beginning on the date hereof and ending on the date that is 180 days from the date of the Underwriting Agreement (the "Lock-Up Period"), the undersigned will not, without the prior written consent of the Representatives, (i) directly or indirectly, offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase or otherwise transfer or dispose of any shares of the Company's Common Stock or any securities convertible into or exercisable or exchangeable for Common Stock, whether now owned or hereafter acquired by the undersigned or with respect to which the undersigned has or hereafter acquires the power of disposition (collectively, the "Lock-Up Securities"), or exercise any right with respect to the registration of any of the Lock-Up Securities, or file, cause to be filed or cause to be confidentially submitted any registration statement in connection therewith, under the Securities Act of 1933, as amended (the "Securities Act"), except for any registration statement on Form S-8,

or (ii) enter into any swap or any other agreement or any transaction that transfers, in whole or in part, directly or indirectly, the economic consequence of ownership of the Lock-Up Securities, whether any such swap or transaction is to be settled by delivery of Common Stock or other securities, in cash or otherwise. If the undersigned is an officer or director of the Company, the undersigned further agrees that the foregoing provisions shall be equally applicable to any issuer-directed shares of Common Stock the undersigned may purchase in the Offering.

If the undersigned is an officer or director of the Company, (1) the Representatives agree that, at least three business days before the effective date of any release or waiver of the foregoing restrictions in connection with a transfer of shares of the Common Stock, the Representatives will notify the Company of the impending release or waiver, and (2) the Company has agreed in the Underwriting Agreement to announce the impending release or waiver by press release through a major news service at least two business days before the effective date of the release or waiver. Any release or waiver granted by the Representatives hereunder to any such officer or director shall only be effective two business days after the publication date of such press release. The provisions of this paragraph will not apply if (i) the release or waiver is effected solely to permit a transfer not for consideration and (ii) the transferee has agreed in writing to be bound by the same terms described in this letter agreement to the extent and for the duration that such terms remain in effect at the time of the transfer.

Notwithstanding the foregoing, and subject to the conditions below, the undersigned may transfer the Lock-Up Securities without the prior written consent of the Representatives, provided that: (1) in the case of any transfer pursuant to clauses (i)-(vii) below, the Representatives receive a signed letter agreement for the balance of the Lock-Up Period from each donee, trustee, distributee, or transferee, as the case may be; (2) in the case of any transfer pursuant to clauses (i)-(vi) below, such transfer shall not involve a disposition for value, nor be required to be filed with the Securities and Exchange Commission ("SEC") on Form 4 in accordance with Section 16 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"); and (3) in the case of any transfer pursuant to clauses (i)-(vii), the undersigned does not otherwise voluntarily effect any public filing or report regarding any such transfer (other than a filing on a Form 5 made after the expiration of the Lock-Up Period):

(i) as a *bona fide* gift or gifts;

(ii) upon death or by will, testamentary document or intestate succession to the legal representative, heir, beneficiary or a member of the immediate family (as defined below) of the undersigned;

(iii) to any immediate family member of the undersigned or to any trust for the direct or indirect benefit of the undersigned or the immediate family of the undersigned (for purposes of this letter agreement, "immediate family" shall mean any relationship by blood, marriage or adoption, not more remote than first cousin);

(iv) as a distribution to partners, members or stockholders of the undersigned or under common control or management by entities that are affiliates of the undersigned;

(v) to the undersigned's affiliates, as defined in Rule 405 under the Securities Act, or to any investment fund or other entity controlled or managed by the undersigned;

(vi) if the undersigned is a trust, to a trustor, trustee or beneficiary of the trust or to the estate of a trustor, trustee or beneficiary of such trust;

(vii) pursuant to a domestic order or negotiated divorce settlement; or

(viii) the withholding of shares by, or surrender of shares to, the Company pursuant to a "net" or "cashless" exercise or settlement feature to cover taxes due upon or the consideration required in connection with the exercise of securities issued under an equity incentive plan or stock purchase plan of the Company, provided that if the undersigned is required to make a filing under the Exchange Act, such filing shall include a footnote describing the purpose of the transaction.

Furthermore, the undersigned may sell shares of Common Stock of the Company purchased by the undersigned in the Offering or on the open market following the Offering if and only if (i) such sales are not required to be reported in any public report or filing with the SEC, or otherwise and (ii) the undersigned does not otherwise voluntarily effect any public filing or report regarding such.

Furthermore, no provision in this letter agreement shall be deemed to restrict or prohibit (1) the transfer of the undersigned's Common Stock or any security convertible into or exercisable or exchangeable for Common Stock to the Company in connection with the termination of the undersigned's employment with the Company or pursuant to contractual arrangements under which the Company has the option to repurchase such shares, *provided* that no filing by any party under the Exchange Act or other public announcement shall be required or shall be made voluntarily within 45 days after the date the undersigned ceases to provide services to the Company, and after such 45th day, if the undersigned is required to file a report under the Exchange Act reporting a reduction in beneficial ownership of shares of Common Stock during the Lock-Up Period, the undersigned shall clearly indicate in the footnotes thereto that the filing relates to the termination of the undersigned's employment, and no other public announcement shall be made voluntarily in connection with such transfer (other than a filing on a Form 5 made after the expiration of the Lock-Up Period), (2) the establishment of a trading plan pursuant to Rule 10b5-1 under the Exchange Act for the transfer of Common Stock, *provided* that such plan does not provide for any transfers of Common Stock during the Lock-Up Period and *provided, further*, that no filing by any party under the Exchange Act or other public announcement shall be required or shall be made voluntarily in connection therewith during the Lock-Up Period, (3) the exercise, vesting or settlement, as applicable, by the undersigned of any option to purchase any shares of Common Stock or other equity awards pursuant to any stock incentive plan or stock purchase plan of the Company, *provided* that the underlying shares of Common Stock shall continue to be subject to the restrictions on transfer set forth in this letter agreement, (4) the conversion of the outstanding shares of preferred stock of the Company into shares of Common Stock, or the reclassification of the Company's outstanding warrants to purchase shares of preferred stock of the Company into warrants to purchase Common Stock; *provided* that any such shares or securities received upon such conversion or reclassification shall be subject to the restrictions on transfer set forth in this letter agreement, or (5) the transfer of shares of Common Stock or any security convertible into or exercisable or exchangeable for Common Stock pursuant to a bona fide third-party tender offer for securities of the Company, merger, consolidation or other similar transaction that is approved by the board of directors of the Company, made to all holders of Common Stock involving a change of control (as defined below), *provided* that all of the undersigned's Lock-Up Securities subject to this letter agreement that are not so transferred, sold, tendered or otherwise disposed of remain subject to this letter agreement, and provided further that it shall be a condition of the transfer that if the tender offer, merger, consolidation or other such transaction is not completed, the undersigned's Lock-Up Securities subject to this letter agreement shall remain subject to the restrictions herein. For purposes of this letter agreement, "change of control" means any bona fide third party tender offer, merger, consolidation or other similar transaction, in one transaction or a series of related transactions, the result of which is that any "person" (as defined in Section 13(d)(3) of the Exchange Act), or group of affiliated persons, other than the Company, becomes the beneficial owner (as defined in Rules 13d-3 and 13d-5 of the Exchange Act) of 50% or more of the total voting power of the voting stock of the Company (or the surviving entity).

The undersigned also agrees and consents to the entry of stop transfer instructions with the Company's transfer agent and registrar against the transfer of the Lock-Up Securities except in compliance with the foregoing restrictions.

The undersigned hereby waives any and all notice requirements and other rights (including, if applicable, those rights set forth in that certain Amended and Restated Investors' Rights Agreement, dated as of June 24, 2020, by and among the Company and each of the persons and entities listed on Schedule A thereto and Schedule B thereto), with respect to the registration of any shares of capital stock of the Company or any securities convertible into, or exercisable or exchangeable for such capital stock, including with respect to the Offering.

This letter agreement shall automatically terminate and be of no further effect upon the earliest to occur, if any, of the following: (i) prior to the execution of the Underwriting Agreement, upon such date the Company, on the one hand, or the Representatives, on the other hand, notifies the other in writing that it does not intend to proceed with the Offering, (ii) the Underwriting Agreement is not executed before September 30, 2020 (provided that the Company may, by written notice to the undersigned prior to September 30, 2020, extend such date for a period of up to an additional three months in the event that the Underwriting Agreement has not been executed by such date), (iii) the date that the Company withdraws the registration statement related to the Offering, or (iv) upon the termination (other than the provisions thereof that survive termination) of the Underwriting Agreement in accordance with the terms thereof prior to payment for and delivery of the shares of Common Stock to be sold thereunder.

Very truly yours,

Signature: _____

Print Name: _____

FORM OF PRESS RELEASE
TO BE ISSUED PURSUANT TO SECTION 3(j)

Poseida Therapeutics, Inc.
[*insert date*]

Poseida Therapeutics, Inc. (the "Company") announced today that BofA and Piper Sandler & Co., the lead book-running managers in the Company's recent public sale of [●] shares of common stock, is [waiving] [releasing] a lock-up restriction with respect to [●] shares of the Company's common stock held by [certain officers or directors] [an officer or director] of the Company. The [waiver] [release] will take effect [*insert date*], and the shares may be sold on or after such date.

This press release is not an offer for sale of the securities in the United States or in any other jurisdiction where such offer is prohibited, and such securities may not be offered or sold in the United States absent registration or an exemption from registration under the United States Securities Act of 1933, as amended.

AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
POSEIDA THERAPEUTICS, INC.

(Pursuant to Sections 242 and 245 of the
General Corporation Law of the State of Delaware)

Poseida Therapeutics, Inc., a corporation organized and existing under and by virtue of the provisions of the General Corporation Law of the State of Delaware (the "***General Corporation Law***"),

DOES HEREBY CERTIFY:

1. That the name of this corporation is Poseida Therapeutics, Inc., and that this corporation was originally incorporated pursuant to the General Corporation Law on December 16, 2014 under the name Poseida Therapeutics, Inc.

2. That this corporation's Board of Directors duly adopted resolutions proposing to amend and restate the Certificate of Incorporation of this corporation, declaring said amendment and restatement to be advisable and in the best interests of this corporation and its stockholders, and authorizing the appropriate officers of this corporation to solicit the consent of the stockholders therefor, which resolution setting forth the proposed amendment and restatement is as follows:

RESOLVED, that the Certificate of Incorporation of this corporation be amended and restated in its entirety to read as follows:

FIRST: The name of this corporation is Poseida Therapeutics, Inc. (the "***Corporation***").

SECOND: The address of the registered office of the Corporation in the State of Delaware is 251 Little Falls Drive, in the City of Wilmington, State of Delaware 19808, County of New Castle. The name of its registered agent at such address is Corporation Service Company.

THIRD: The nature of the business or purposes to be conducted or promoted is to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law of the State of Delaware (the "***General Corporation Law***").

FOURTH: The total number of shares of all classes of stock which the Corporation shall have authority to issue is (i) 73,000,000 shares of Common Stock, $0.0001 par value per share ("***Common Stock***") and (ii) 46,809,523 shares of Preferred Stock, $0.0001 par value per share ("***Preferred Stock***").

The following is a statement of the designations and the powers, privileges and rights, and the qualifications, limitations or restrictions thereof in respect of each class of capital stock of the Corporation.

A. COMMON STOCK

1. General. The voting, dividend and liquidation rights of the holders of the Common Stock are subject to and qualified by the rights, powers and preferences of the holders of the Preferred Stock set forth herein.

2. Voting. The holders of the Common Stock are entitled to one vote for each share of Common Stock held at all meetings of stockholders (and written actions in lieu of meetings); provided, however, that, except as otherwise required by law, holders of Common Stock, as such, shall not be entitled to vote on any amendment to this Certificate of Incorporation that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together with the holders of one or more other such series, to vote thereon pursuant to this Certificate of Incorporation or pursuant to the General Corporation Law. There shall be no cumulative voting. The number of authorized shares of Common Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by (in addition to any vote of the holders of one or more series of Preferred Stock that may be required by the terms of this Certificate of Incorporation) the affirmative vote of the holders of shares of capital stock of the Corporation representing a majority of the votes represented by all outstanding shares of capital stock of the Corporation entitled to vote, irrespective of the provisions of Section 242(b)(2) of the General Corporation Law.

B. PREFERRED STOCK

9,696,798 of the authorized shares of Preferred Stock are hereby designated "**Series A Preferred Stock**". 3,370,263 of the authorized shares of Preferred Stock are hereby designated "**Series A-1 Preferred Stock**". 5,283,992 of the authorized shares of Preferred Stock are hereby designated "**Series B Preferred Stock**". 14,734,774 of the authorized shares of Preferred Stock are hereby designated "**Series C Preferred Stock**". 13,723,696 of the authorized shares of Preferred Stock are hereby designated "**Series D Preferred Stock**". The rights, preferences, powers, privileges and restrictions, qualifications and limitations of the Series A Preferred Stock, the Series A-1 Preferred Stock, the Series B Preferred Stock, the Series C Preferred Stock and the Series D Preferred Stock, together the "**Series Preferred Stock**", are as follows. Unless otherwise indicated, references to "sections" or "subsections" in this Part B of this Article FOURTH refer to sections and subsections of Part B of this Article FOURTH.

1. Dividends.

The Corporation shall not declare, pay or set aside any dividends on shares of any other class or series of capital stock of the Corporation (other than dividends on shares of Common Stock payable in shares of Common Stock) unless (in addition to the obtaining of any consents required elsewhere in this Certificate of Incorporation) the holders of the Series Preferred Stock then outstanding shall simultaneously receive, a dividend on each outstanding share of Series Preferred Stock in an amount at least equal to (i) in the case of a dividend on the Common Stock or any class or series that is convertible into Common Stock, that dividend per share of Series Preferred Stock as would equal the product of (A) the dividend payable on each share of such class or series determined, if applicable, as if all shares of such class or series had been converted into Common Stock, and (B) the number of shares of Common Stock issuable upon conversion of a share of Series Preferred Stock, in each case calculated on the record date for determination of holders entitled to receive such dividend, or (ii) in the case of a dividend on any class or series that

is not convertible into Common Stock, at a rate per share of Series Preferred Stock determined by (A) dividing the amount of the dividend payable on each share of such class or series of capital stock by the original issuance price of such class or series of capital stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to such class or series) and (B) multiplying such fraction by an amount equal to the applicable Series Preferred Original Issue Price (as defined below); provided, that, if the Corporation declares, pays or sets aside, on the same date, a dividend on shares of more than one class or series of capital stock of the Corporation, the dividend payable to the holders of Series Preferred Stock pursuant to this Section 1 shall be calculated based upon the dividend on the class or series of capital stock that would result in the highest Series Preferred Stock dividend. The "***Series Preferred Original Issue Price***" of (i) the Series A Preferred Stock and Series A-1 Preferred Stock shall be $3.43 per share (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like with respect to such shares after the filing date hereof), (ii) the Series B Preferred Stock shall be $5.81 per share (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like with respect to such shares after the filing date hereof), (iii) the Series C Preferred Stock shall be $10.18 per share (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like with respect to such shares after the filing date hereof) and (iv) the Series D Preferred Stock shall be $10.93 per share (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like with respect to such shares after the filing date hereof).

2. Liquidation, Dissolution or Winding Up; Certain Mergers, Consolidations and Asset Sales.

2.1 Preferential Payments to Holders of Series Preferred Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event (as defined below), the holders of shares of Series Preferred Stock then outstanding shall be entitled to be paid out of the assets of the Corporation available for distribution to its stockholders, at the time of the distribution of Initial Consideration (as defined below) and each distribution of Additional Consideration (as defined below), on a pari passu basis and before any payment shall be made to the holders of Common Stock by reason of their ownership thereof, an amount per share equal to the greater of (i) the applicable Series Preferred Original Issue Price, plus any dividends declared but unpaid thereon, or (ii) such amount per share as would have been payable had all shares of Series Preferred Stock been converted into Common Stock pursuant to Section 4 immediately prior to such liquidation, dissolution, winding up or Deemed Liquidation Event but giving effect, at each distribution of Additional Consideration pursuant to Subsection 2.3.4, to all distributions of Initial Consideration and Additional Consideration previously paid (the amount payable pursuant to this sentence is hereinafter referred to as the "***Series Preferred Liquidation Amount***"). If, upon any such liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, the assets of the Corporation available for distribution to its stockholders shall be insufficient to pay the holders of shares of Series Preferred Stock the full amount to which they shall be entitled under this Subsection 2.1, the holders of shares of Series Preferred Stock shall share ratably in any distribution of the assets available for distribution in proportion to the respective amounts which would otherwise be payable in respect of the shares held by them upon such distribution if all amounts payable on or with respect to such shares were paid in full.

2.2 Payments to Holders of Common Stock. In the event of any voluntary or involuntary liquidation, dissolution or winding up of the Corporation or Deemed Liquidation Event, after the payment of all preferential amounts required to be paid to the holders of shares of Series Preferred Stock, the remaining assets of the Corporation available for distribution to its stockholders shall be distributed among the holders of shares of Common Stock, *pro rata* based on the number of shares of Common Stock held by each such holder.

2.3 Deemed Liquidation Events.

2.3.1 Definition. Each of the following events shall be considered a "***Deemed Liquidation Event***" unless the holders of at least 60% of the outstanding shares of Series Preferred Stock elect otherwise by written notice sent to the Corporation at least three (3) days prior to the effective date of any such event (and the Corporation shall provide notice of such event to the holders of Series Preferred Stock sufficiently in advance of such three (3)-day period):

(a) a merger or consolidation in which

(i) the Corporation is a constituent party, or

(ii) a subsidiary of the Corporation is a constituent party and the Corporation issues shares of its capital stock pursuant to such merger or consolidation,

except any such merger or consolidation involving the Corporation or a subsidiary in which the shares of capital stock of the Corporation outstanding immediately prior to such merger or consolidation continue to represent, or are converted into or exchanged for shares of capital stock that represent, immediately following such merger or consolidation, a majority, by voting power, of the capital stock of (1) the surviving or resulting corporation, or (2) if the surviving or resulting corporation is a wholly owned subsidiary of another corporation immediately following such merger or consolidation, the parent corporation of such surviving or resulting corporation; or

(b) the sale, lease, transfer, exclusive license or other disposition, in a single transaction or series of related transactions, by the Corporation or any subsidiary of the Corporation of all or substantially all the assets of the Corporation and its subsidiaries taken as a whole, or the sale or disposition (whether by merger, consolidation or otherwise) of one or more subsidiaries of the Corporation if substantially all of the assets of the Corporation and its subsidiaries taken as a whole are held by such subsidiary or subsidiaries, except where such sale, lease, transfer, exclusive license or other disposition is to one or more wholly owned subsidiaries of the Corporation.

2.3.2 Effecting a Deemed Liquidation Event.

(a) The Corporation shall not have the power to effect a Deemed Liquidation Event referred to in Subsection 2.3.1(a)(i) unless the agreement or plan of merger or consolidation for such transaction (the "***Merger Agreement***") provides that the consideration payable to the stockholders of the Corporation shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2.

(b) In the event of a Deemed Liquidation Event referred to in Subsection 2.3.1(a)(ii) or 2.3.1(b), if the Corporation does not effect a dissolution of the Corporation under the General Corporation Law or otherwise pay the Series Preferred Liquidation Amount pursuant to Subsection 2.1 within ninety (90) days after such Deemed Liquidation Event, then (i) the Corporation shall send a written notice to each holder of Series Preferred Stock no later than the ninetieth (90th) day after the Deemed Liquidation Event advising such holders of their right (and the requirements to be met to secure such right) pursuant to the terms of the following clause (ii) to require the redemption of such shares of Series Preferred Stock, and (ii) if the holders of at least 60% of the then-outstanding shares of Series Preferred Stock so request in a written instrument delivered to the Corporation not later than one hundred twenty (120) days after such Deemed Liquidation Event, the Corporation shall use the consideration received by the Corporation from such Deemed Liquidation Event (net of any retained liabilities associated with the assets sold or technology licensed, as determined in good faith by the Board of Directors of the Corporation (the "***Board of Directors***"), together with any other assets of the Corporation available for distribution to its stockholders, all to the extent permitted by Delaware law governing distributions to stockholders (the "***Available Proceeds***"), on the one hundred fiftieth (150th) day after such Deemed Liquidation Event, to redeem all outstanding shares of Series Preferred Stock at a price per share equal to the applicable Series Preferred Liquidation Amount. Notwithstanding the foregoing, in the event of a redemption pursuant to the preceding sentence, if the Available Proceeds are not sufficient to redeem all outstanding shares of Series Preferred Stock, the Corporation shall ratably redeem each holder's shares of Series Preferred Stock to the fullest extent of such Available Proceeds, and shall redeem the remaining shares as soon as it may lawfully do so under Delaware law governing distributions to stockholders. Prior to the distribution or redemption provided for in this Subsection 2.3.2(b), the Corporation shall not expend or dissipate the consideration received for such Deemed Liquidation Event, except to discharge expenses incurred in connection with such Deemed Liquidation Event.

(c) In the event of a redemption of the Series Preferred Stock pursuant to this Subsection 2.3.2, the Corporation shall send written notice of the mandatory redemption (a "***Redemption Notice***") to each holder of record of Series Preferred Stock not less than thirty (30) days prior to the date of redemption (a "***Redemption Date***"). Each Redemption Notice shall state (i) the number of shares of Series Preferred Stock held by the holder that the Corporation shall redeem on the Redemption Date specified in the Redemption Notice; (ii) the Redemption Date; (iii) the date upon which the holder's right to convert such shares terminates (as determined in accordance with Subsection 4.1); and (iv) for holders of shares in certificated form, that the holder is to surrender to the Corporation, in the manner and at the place designated in the Redemption Notice, such holder's certificate or certificates representing the shares of Series Preferred Stock to be redeemed. On or before the applicable Redemption Date, each holder of shares of Series Preferred Stock to be redeemed on such Redemption Date, unless such holder has exercised such holder's right to convert such shares as provided in Section 4, shall, if a holder of shares in certificated form, surrender the certificate or certificates representing such shares (or, if such registered holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation, in the manner and at the place designated in the Redemption Notice, and thereupon the Redemption Price for such shares shall be payable to the order of the person whose name appears on such certificate or certificates as the owner thereof. In the event less than all of the shares of Series Preferred Stock represented by a

certificate are redeemed, a new certificate, instrument, or book entry representing the unredeemed shares of Series Preferred Stock shall promptly be issued to such holder. If the Redemption Notice shall have been duly given, and if on the applicable Redemption Date, the Redemption Price payable upon redemption of the shares of Series Preferred Stock to be redeemed on such Redemption Date is paid or tendered for payment or deposited with an independent payment agent so as to be available therefor in a timely manner, then, notwithstanding that any certificates evidencing any of the shares of Series Preferred Stock so called for redemption shall not have been surrendered to the Corporation, dividends with respect to such shares of Series Preferred Stock shall cease to accrue after such Redemption Date and all rights with respect to such shares shall forthwith after the Redemption Date terminate, except only the right of the holders to receive the Redemption Price, without interest, upon surrender of any such certificate or certificates therefor.

2.3.3 Amount Deemed Paid or Distributed. If the amount deemed paid or distributed to the holders of capital stock of the Corporation under this Section 2 upon any such merger, consolidation, sale, transfer, exclusive license, other disposition or redemption is made in property other than cash, the value of such distribution shall be the fair market value of such property, determined as follows:

(a) For securities not subject to investment letters or other similar restrictions on free marketability, (i) if traded on a securities exchange or quoted on an automated quotation system, the value shall be deemed to be the average of the closing prices of the securities on such exchange or market over the twenty (20) trading day period ending three (3) days prior to the closing of such transaction; (ii) if actively traded over-the-counter, the value shall be deemed to be the average of the closing bid or sales prices (whichever is applicable) over the twenty (20) trading day period ending three (3) days prior to the closing of such transaction; and (iii) if there is no active public market, the value shall be the fair market value thereof, as determined in good faith by the Board of Directors.

(b) The method of valuation of securities subject to investment letters or other similar restrictions on free marketability (other than restrictions arising solely by virtue of a stockholder's status as an affiliate or former affiliate) shall take into account an appropriate discount (as determined in good faith by the Board of Directors) from the market value as determined pursuant to clause (a) above so as to reflect the approximate fair market value thereof.

(c) The foregoing methods for valuing non-cash consideration to be distributed in connection with a Deemed Liquidation Event as required by this Certificate of Incorporation or the General Corporation Law shall, upon approval by the stockholders (including the holders of at least 60% of the then-outstanding shares of Series Preferred Stock) of the definitive agreements governing such Liquidation Event, be superseded by any determination of such value set forth in the definitive agreements governing such Deemed Liquidation Event.

2.3.4 Allocation of Escrow and Contingent Consideration. In the event of a Deemed Liquidation Event pursuant to Subsection 2.3.1(a)(i), if any portion of the consideration payable to the stockholders of the Corporation is payable only upon satisfaction of contingencies ("***Additional Consideration***"), the Merger Agreement shall provide that (a) the portion of such consideration that is not Additional Consideration (such portion, the "***Initial Consideration***") shall be allocated among the holders of capital stock of the Corporation in

accordance with Subsections 2.1 and 2.2 as if the Initial Consideration were the only consideration payable in connection with such Deemed Liquidation Event; and (b) any Additional Consideration which becomes payable to the stockholders of the Corporation upon satisfaction of such contingencies shall be allocated among the holders of capital stock of the Corporation in accordance with Subsections 2.1 and 2.2 after taking into account the previous payment of the Initial Consideration and any previous distributions of Additional Consideration as part of the same transaction. For the purposes of this Subsection 2.3.4, consideration placed into escrow or retained as holdback to be available for satisfaction of indemnification or similar obligations in connection with such Deemed Liquidation Event shall be deemed to be Additional Consideration.

3. Voting.

3.1 General. On any matter presented to the stockholders of the Corporation for their action or consideration at any meeting of stockholders of the Corporation (or by written consent of stockholders in lieu of meeting), each holder of outstanding shares of Series Preferred Stock shall be entitled to cast that number of votes equal to the number of whole shares of Common Stock into which the shares of Series Preferred Stock held by such holder are convertible as of the record date for determining stockholders entitled to vote on such matter. Except as provided by law or by the other provisions of this Certificate of Incorporation, holders of Series Preferred Stock shall vote together with the holders of Common Stock as a single class.

3.2 Election of Directors. The holders of record of the shares of Series D Preferred Stock, exclusively and as a separate class, shall be entitled to elect one (1) director of the Corporation (the "***Series D Director***"), the holders of record of the shares of Series C Preferred Stock, exclusively and as a separate class, shall be entitled to elect one (1) director of the Corporation (the "***Series C Director***"), the holders of record of the shares of Series B Preferred Stock, exclusively and as a separate class, shall be entitled to elect one (1) director of the Corporation (the "***Series B Director***"), the holders of record of the shares of Series A Preferred Stock and Series A-1 Preferred Stock, exclusively and voting together as a single class, shall be entitled to elect one (1) director of the Corporation (the "***Series A Director***" and together with the Series B Director, the Series C Director and the Series D Director, the "***Series Preferred Directors***"), and the holders of record of the shares of Common Stock, exclusively and as a separate class, shall be entitled to elect two (2) directors of the Corporation. Any director elected as provided in the preceding sentence may be removed without cause by, and only by, the affirmative vote of the holders of the shares of the class or series of capital stock entitled to elect such director or directors, given either at a special meeting of such stockholders duly called for that purpose or pursuant to a written consent of stockholders. If the holders of shares of the applicable series of Series Preferred Stock or Common Stock, as the case may be, fail to elect a sufficient number of directors to fill all directorships for which they are entitled to elect directors, voting exclusively and as a separate class, pursuant to the first sentence of this Subsection 3.2, then any directorship not so filled shall remain vacant until such time as the holders of the applicable series of Series Preferred Stock or Common Stock, as the case may be, elect a person to fill such directorship by vote or written consent in lieu of a meeting, and no such directorship may be filled by stockholders of the Corporation other than by the stockholders of the Corporation that are entitled to elect a person to fill such directorship, voting exclusively and as a separate class. The holders of record of the shares of Common Stock and of any other class or series of voting stock (including the Series Preferred Stock), exclusively and voting together as a single class on an as-converted basis, shall be entitled to elect the balance of the total number of directors of the

Corporation. At any meeting held for the purpose of electing a director, the presence in person or by proxy of the holders of a majority of the outstanding shares of the class or series entitled to elect such director shall constitute a quorum for the purpose of electing such director. Except as otherwise provided in this Subsection 3.2, a vacancy in any directorship filled by the holders of any class or series shall be filled only by vote or written consent in lieu of a meeting of the holders of such class or series or by any remaining director or directors elected by the holders of such class or series pursuant to this Subsection 3.2.

The rights of the holders of the Series D Preferred Stock under the first sentence of this Subsection 3.2 shall terminate on the first date on which there are issued and outstanding less than 2,058,554 shares of Series D Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to such shares after the filing date hereof). The rights of the holders of the Series C Preferred Stock under the first sentence of this Subsection 3.2 shall terminate on the first date on which there are issued and outstanding less than 1,268,663 shares of Series C Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to such shares after the filing date hereof). The rights of the holders of the Series B Preferred Stock under the first sentence of this Subsection 3.2 shall terminate on the first date on which there are issued and outstanding less than 1,067,126 shares of Series B Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to such shares after the filing date hereof). The rights of the holders of the Series A Preferred Stock and the Series A-1 Preferred Stock under the first sentence of this Subsection 3.2 shall terminate on the first date on which there are issued and outstanding less than an aggregate of 1,343,046 shares of Series A Preferred Stock and Series A-1 Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to such shares after the filing date hereof).

3.3 Series Preferred Stock Protective Provisions. At any time when at least an aggregate of 2,000,000 shares of Series Preferred Stock (subject to appropriate adjustment in the event of any stock dividend, stock split, combination or other similar recapitalization with respect to the Series Preferred Stock and on an as-converted to Common Stock basis) are outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, do any of the following without (in addition to any other vote required by law or this Certificate of Incorporation) the written consent or affirmative vote of the holders of at least 60% of the then-outstanding shares of Series Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a class, and any such act or transaction entered into without such consent or vote shall be null and void *ab initio*, and of no force or effect:

3.3.1 liquidate, dissolve or wind-up the business and affairs of the Corporation, effect any merger or consolidation or any other Deemed Liquidation Event, or consent to any of the foregoing;

3.3.2 amend, alter or repeal any provision of this Certificate of Incorporation or the Bylaws of the Corporation (the "***Bylaws***") in any manner that adversely affects the powers, preferences or rights of the Series Preferred Stock;

3.3.3 increase or decrease (other than by conversion) the total number of authorized shares of Series Preferred Stock;

3.3.4 create, or authorize the creation of, or issue or obligate itself to issue shares of, any additional class or series of capital stock unless the same ranks junior to the Series Preferred Stock with respect to the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends and rights of redemption, or increase the authorized number of shares of Series Preferred Stock or increase the authorized number of shares of any additional class or series of capital stock unless the same ranks junior to the Series Preferred Stock with respect to the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends and rights of redemption;

3.3.5 (i) reclassify, alter or amend any existing security of the Corporation that is *pari passu* with the Series Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to the Series Preferred Stock in respect of any such right, preference, or privilege, or (ii) reclassify, alter or amend any existing security of the Corporation that is junior to the Series Preferred Stock in respect of the distribution of assets on the liquidation, dissolution or winding up of the Corporation, the payment of dividends or rights of redemption, if such reclassification, alteration or amendment would render such other security senior to or *pari passu* with the Series Preferred Stock in respect of any such right, preference or privilege;

3.3.6 purchase or redeem or pay or declare any dividend or make any distribution on, any shares of capital stock of the Corporation, other than (i) redemptions of or dividends or distributions on the Series Preferred Stock as expressly authorized herein, (ii) dividends or other distributions payable on the Common Stock solely in the form of additional shares of Common Stock and (iii) repurchases of stock from former employees, officers, directors, consultants or other persons who performed services for the Corporation in connection with the cessation of such employment or service at the lower of the original purchase price or the then-current fair market value thereof, or (iv) as approved by the Board of Directors, including the approval of at least one (1) Series Preferred Director;

3.3.7 create, or authorize the creation of, or issue, or authorize the issuance of any debt security unless such debt security has received the prior approval of the Board of Directors, including the approval of at least one (1) Series Preferred Director;

3.3.8 create, or hold capital stock in, any subsidiary that is not wholly owned by the Corporation, or sell, transfer or otherwise dispose of any capital stock of any direct or indirect subsidiary of the Corporation, or permit any direct or indirect subsidiary to sell, lease, transfer, exclusively license or otherwise dispose (in a single transaction or series of related transactions) of all or substantially all of the assets of such subsidiary;

3.3.9 acquire the equity interests or all or substantially all of the assets of any entity, business unit or division of an entity, including any assets that may be material to the Corporation or the making of any other material investment, unless approved by the Board of Directors, including the approval of a majority of the Series Preferred Directors; or

3.3.10 take or approve any of the foregoing actions with respect to a subsidiary of the Corporation.

3.4 Separate Vote of Series D Preferred Stock. For so long as any shares of Series D Preferred Stock remain outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, without (in addition to any other vote required by law or this Certificate of Incorporation) the written consent or affirmative vote of the holders of a majority of the then-outstanding shares of Series D Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a class, (i) amend, alter, repeal or waive any provision of this Certificate of Incorporation or the Bylaws in any manner that adversely affects the powers, preferences or rights of the Series D Preferred Stock if all series of Series Preferred Stock are not similarly affected, or (ii) increase or decrease the total number of authorized shares of Series D Preferred Stock.

3.5 Separate Vote of Series C Preferred Stock. For so long as any shares of Series C Preferred Stock remain outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, without (in addition to any other vote required by law or this Certificate of Incorporation) the written consent or affirmative vote of the holders of a majority of the then-outstanding shares of Series C Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a class, amend, alter, repeal or waive any provision of this Certificate of Incorporation or the Bylaws in any manner that adversely affects the powers, preferences or rights of the Series C Preferred Stock if all series of Series Preferred Stock are not similarly affected.

3.6 Separate Vote of Series B Preferred Stock. For so long as any shares of Series B Preferred Stock remain outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, without (in addition to any other vote required by law or this Certificate of Incorporation) the written consent or affirmative vote of the holders of at least 60% of the then-outstanding shares of Series B Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a class, amend, alter, repeal or waive any provision of this Certificate of Incorporation or the Bylaws in any manner that adversely affects the powers, preferences or rights of the Series B Preferred Stock if all series of Series Preferred Stock are not similarly affected.

3.7 Separate Vote of Series A-1 Preferred Stock. For so long as any shares of Series A-1 Preferred Stock remain outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, without (in addition to any other vote required by law or this Certificate of Incorporation) the written consent or affirmative vote of the holders of at least 60% of the then-outstanding shares of Series A-1 Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a class, amend, alter, repeal or waive any provision of this Certificate of Incorporation or the Bylaws in any manner that adversely affects the powers, preferences or rights of the Series A-1 Preferred Stock if all series of Series Preferred Stock are not similarly affected.

3.8 Separate Vote of Series A Preferred Stock. For so long as any shares of Series A Preferred Stock remain outstanding, the Corporation shall not, either directly or indirectly by amendment, merger, consolidation or otherwise, without (in addition to any other vote required by law or this Certificate of Incorporation) the written consent or affirmative vote of

the holders of at least 60% of the then-outstanding shares of Series A Preferred Stock, given in writing or by vote at a meeting, consenting or voting (as the case may be) separately as a class, amend, alter, repeal or waive any provision of this Certificate of Incorporation or the Bylaws in any manner that adversely affects the powers, preferences or rights of the Series A Preferred Stock if all series of Series Preferred Stock are not similarly affected.

4. Optional Conversion.

The holders of the Series Preferred Stock shall have conversion rights as follows ("***Conversion Rights***"):

4.1 Right to Convert.

4.1.1 Conversion Ratio. Each share of Series Preferred Stock shall be convertible, at the option of the holder thereof, at any time and from time to time, and without the payment of additional consideration by the holder thereof, into such number of fully paid and non-assessable shares of Common Stock as is determined by dividing the applicable Series Preferred Original Issue Price by the applicable Series Preferred Conversion Price (as defined below) in effect at the time of conversion. As of the filing date hereof, the "***Series Preferred Conversion Price***" for a series of Series Preferred Stock is equal to the applicable Series Preferred Original Issue Price. Such initial Series Preferred Conversion Price, and the rate at which shares of applicable Series Preferred Stock may be converted into shares of Common Stock, shall be subject to adjustment as provided below.

4.1.2 Termination of Conversion Rights. In the event of a liquidation, dissolution or winding up of the Corporation or a Deemed Liquidation Event, the Conversion Rights shall terminate at the close of business on the last full day preceding the date fixed for the payment of any such amounts distributable on such event to the holders of Series Preferred Stock.

4.2 Fractional Shares. No fractional shares of Common Stock shall be issued upon conversion of the Series Preferred Stock. In lieu of any fractional shares to which the holder would otherwise be entitled, the Corporation shall pay cash equal to such fraction multiplied by the fair market value of a share of Common Stock as determined in good faith by the Board of Directors of the Corporation. Whether or not fractional shares would be issuable upon such conversion shall be determined on the basis of the total number of shares of Series Preferred Stock the holder is at the time converting into Common Stock and the aggregate number of shares of Common Stock issuable upon such conversion.

4.3 Mechanics of Conversion.

4.3.1 Notice of Conversion. In order for a holder of Series Preferred Stock to voluntarily convert shares of Series Preferred Stock into shares of Common Stock, such holder shall (a) provide written notice to the Corporation's transfer agent at the office of the transfer agent for the Series Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent) that such holder elects to convert all or any number of such holder's shares of Series Preferred Stock and, if applicable, any event on which such conversion is contingent, and (b), if such holder's shares are certificated, surrender the certificate or certificates for such shares of Series Preferred Stock (or, if such registered holder

alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate), at the office of the transfer agent for the Series Preferred Stock (or at the principal office of the Corporation if the Corporation serves as its own transfer agent). Such notice shall state such holder's name or the names of the nominees in which such holder wishes the shares of Common Stock to be issued. If required by the Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by a written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or his, her or its attorney duly authorized in writing. The close of business on the date of receipt by the transfer agent (or by the Corporation if the Corporation serves as its own transfer agent) of such notice and, if applicable, certificates (or lost certificate affidavit and agreement) shall be the time of conversion (the "***Conversion Time***"), and the shares of Common Stock issuable upon conversion of the specified shares shall be deemed to be outstanding of record as of such date. The Corporation shall, as soon as practicable after the Conversion Time (i) issue and deliver to such holder of Series Preferred Stock, or to such holder's nominees, a certificate or certificates for the number of full shares of Common Stock issuable upon such conversion in accordance with the provisions hereof and a certificate for the number (if any) of the shares of Series Preferred Stock represented by the surrendered certificate that were not converted into Common Stock, (ii) pay in cash such amount as provided in Subsection 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion, and (iii) pay all declared but unpaid dividends on the shares of Series Preferred Stock converted.

4.3.2 Reservation of Shares. The Corporation shall at all times when the Series Preferred Stock shall be outstanding, reserve and keep available out of its authorized but unissued capital stock, for the purpose of effecting the conversion of the Series Preferred Stock, such number of its duly authorized shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding Series Preferred Stock, and if at any time the number of authorized but unissued shares of Common Stock shall not be sufficient to effect the conversion of all then-outstanding shares of Series Preferred Stock, the Corporation shall take such corporate action as may be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purposes, including, without limitation, engaging in best efforts to obtain the requisite stockholder approval of any necessary amendment to this Certificate of Incorporation. Before taking any action which would cause an adjustment reducing the Series Preferred Conversion Price below the then par value of the shares of Common Stock issuable upon conversion of the Series Preferred Stock, the Corporation will take any corporate action which may, in the opinion of its counsel, be necessary in order that the Corporation may validly and legally issue fully paid and non-assessable shares of Common Stock at such adjusted Series Preferred Conversion Price.

4.3.3 Effect of Conversion. All shares of Series Preferred Stock which shall have been surrendered for conversion as herein provided shall no longer be deemed to be outstanding and all rights with respect to such shares shall immediately cease and terminate at the Conversion Time, except only the right of the holders thereof to receive shares of Common Stock in exchange therefor, to receive payment in lieu of any fraction of a share otherwise issuable upon such conversion as provided in Subsection 4.2 and to receive payment of any dividends declared but unpaid thereon. Any shares of Series Preferred Stock so converted shall be retired and cancelled and may not be reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Series Preferred Stock accordingly.

4.3.4 No Further Adjustment. Upon any such conversion, no adjustment to the Series Preferred Conversion Price shall be made for any declared but unpaid dividends on the Series Preferred Stock surrendered for conversion or on the Common Stock delivered upon conversion.

4.3.5 Taxes. The Corporation shall pay any and all issue and other similar taxes that may be payable in respect of any issuance or delivery of shares of Common Stock upon conversion of shares of Series Preferred Stock pursuant to this Section 4. The Corporation shall not, however, be required to pay any tax which may be payable in respect of any transfer involved in the issuance and delivery of shares of Common Stock in a name other than that in which the shares of Series Preferred Stock so converted were registered, and no such issuance or delivery shall be made unless and until the person or entity requesting such issuance has paid to the Corporation the amount of any such tax or has established, to the satisfaction of the Corporation, that such tax has been paid.

4.4 Adjustments to Series Preferred Conversion Price for Diluting Issues.

4.4.1 Special Definitions. For purposes of this Article FOURTH, the following definitions shall apply:

(a) "***Option***" shall mean rights, options or warrants to subscribe for, purchase or otherwise acquire Common Stock or Convertible Securities.

(b) "***Series Preferred Original Issue Date***" shall mean the date on which the first share of Series D Preferred Stock was issued.

(c) "***Convertible Securities***" shall mean any evidences of indebtedness, shares or other securities directly or indirectly convertible into or exchangeable for Common Stock, but excluding Options.

(d) "***Additional Shares of Common Stock***" shall mean all shares of Common Stock issued (or, pursuant to Subsection 4.4.3 below, deemed to be issued) by the Corporation after the Series Preferred Original Issue Date, other than (1) the following shares of Common Stock and (2) shares of Common Stock deemed issued pursuant to the following Options and Convertible Securities (clauses (1) and (2), collectively, "***Exempted Securities***"):

(i) shares of Common Stock issued upon conversion of Series Preferred Stock;

(ii) shares of Common Stock, Options or Convertible Securities issued as a dividend or distribution on Series Preferred Stock;

(iii) shares of Common Stock, Options or Convertible Securities issued by reason of a dividend, stock split, split-up or other distribution on shares of Common Stock that is covered by Subsection 4.5, 4.6, 4.7 or 4.8;

(iv) shares of Common Stock or Options issued to employees or directors of, or consultants or advisors to, the Corporation or any of its subsidiaries pursuant to a plan, agreement or arrangement approved by the Board of Directors;

(v) shares of Common Stock or Convertible Securities actually issued upon the exercise of Options or shares of Common Stock actually issued upon the conversion or exchange of Convertible Securities, in each case provided such issuance is pursuant to the terms of such Option or Convertible Security;

(vi) up to 250,000 shares of Common Stock, Options or Convertible Securities issued to banks, equipment lessors or other financial institutions, or to real property lessors, pursuant to a debt financing, equipment leasing or real property leasing transaction approved by the Board of Directors, provided further that any such financing is primarily for non-equity purposes;

(vii) shares of Common Stock, Options or Convertible Securities issued to suppliers or third party service providers in connection with the provision of goods or services pursuant to transactions approved by the Board of Directors, including at least one (1) Series Preferred Director, and provided that any such issuances are for other than primarily equity financing purposes;

(viii) shares of Common Stock issued in a Qualified IPO (as defined below);

(ix) shares of Common Stock, Options or Convertible Securities issued in connection with a bona fide business acquisition of or by the Corporation, whether by merger, consolidation, sale of assets, sale or exchange

of stock or otherwise, provided that such transaction is approved by the Board of Directors, including at least one (1) Series Preferred Director; or

(x) shares of Common Stock, Options or Convertible Securities issued in connection with sponsored research, collaboration, technology license, development, OEM, marketing or other similar agreements or strategic partnerships approved by the Board of Directors, including at least one (1) Series Preferred Director.

4.4.2 No Adjustment of Series Preferred Conversion Price. No adjustment in a Series Preferred Conversion Price shall be made as the result of the issuance or deemed issuance of Additional Shares of Common Stock if the Corporation receives written notice from (a) in the event of an adjustment affecting the Series A Preferred Stock, the holders of a majority of the then-outstanding shares of Series A Preferred Stock, agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock, (b) in the event of an adjustment affecting the Series A-1 Preferred Stock, the holders of at least 75% of the then-outstanding shares of Series A-1 Preferred Stock, agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock, (c) in the event of an adjustment affecting the Series B Preferred Stock, the holders of at least 60% of the then-outstanding shares of Series B Preferred Stock, agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock, (d) in the event of an adjustment affecting the Series C Preferred Stock, the holders of a majority of the then-outstanding shares of Series C Preferred Stock, agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock or (e) in the event of an adjustment affecting the Series D Preferred Stock, the holders of a majority of the then-outstanding shares of Series D Preferred Stock, agreeing that no such adjustment shall be made as the result of the issuance or deemed issuance of such Additional Shares of Common Stock.

4.4.3 Deemed Issue of Additional Shares of Common Stock.

(a) If the Corporation at any time or from time to time after the Series Preferred Original Issue Date shall issue any Options or Convertible Securities (excluding Options or Convertible Securities which are themselves Exempted Securities) or shall fix a record date for the determination of holders of any class of securities entitled to receive any such Options or Convertible Securities, then the maximum number of shares of Common Stock (as set forth in the instrument relating thereto, assuming the satisfaction of any conditions to exercisability, convertibility or exchangeability but without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or, in the case of Convertible Securities and Options therefor, the conversion or exchange of such Convertible Securities, shall be deemed to be Additional Shares of Common Stock issued as of the time of such issue or, in case such a record date shall have been fixed, as of the close of business on such record date.

(b) If the terms of any Option or Convertible Security, the issuance of which resulted in an adjustment to a Series Preferred Conversion Price pursuant to the terms of Subsection 4.4.4, are revised as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase or decrease in the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any such Option or Convertible Security or (2) any increase or decrease in the consideration payable to the Corporation upon such exercise, conversion and/or exchange, then, effective upon such increase or decrease becoming effective, such Series Preferred Conversion Price computed upon the original issue of such Option or Convertible Security (or upon the occurrence of a record date with respect thereto) shall be readjusted to such Series Preferred Conversion Price as would have obtained had such revised terms been in effect upon the original date of issuance of such Option or Convertible Security. Notwithstanding the foregoing, no readjustment pursuant to this clause (b) shall have the effect of increasing a Series Preferred Conversion Price to an amount which exceeds the lower of (i) the Series Preferred Conversion Price in effect immediately prior to the original adjustment made as a result of the issuance of such Option or Convertible Security, or (ii) the Series Preferred Conversion Price that would have resulted from any issuances of Additional Shares of Common Stock (other than deemed issuances of Additional Shares of Common Stock as a result of the issuance of such Option or Convertible Security) between the original adjustment date and such readjustment date.

(c) If the terms of any Option or Convertible Security (excluding Options or Convertible Securities which are themselves Exempted Securities), the issuance of which did not result in an adjustment to a Series Preferred Conversion Price pursuant to the terms of Subsection 4.4.4 (either because the consideration per share (determined pursuant to Subsection 4.4.5) of the Additional Shares of Common Stock subject thereto was equal to or greater than such Series Preferred Conversion Price then in effect, or because such Option or Convertible Security was issued before the Series Preferred Original Issue Date), are revised after the Series Preferred Original Issue Date as a result of an amendment to such terms or any other adjustment pursuant to the provisions of such Option or Convertible Security (but excluding automatic adjustments to such terms pursuant to anti-dilution or similar provisions of such Option or Convertible Security) to provide for either (1) any increase in the number of shares of Common Stock issuable upon the exercise, conversion or exchange of any such Option or Convertible Security or (2) any decrease in the consideration payable to the Corporation upon such exercise, conversion or exchange, then such Option or Convertible Security, as so amended or adjusted, and the Additional Shares of Common Stock subject thereto (determined in the manner provided in Subsection 4.4.3(a)) shall be deemed to have been issued effective upon such increase or decrease becoming effective.

(d) Upon the expiration or termination of any unexercised Option or unconverted or unexchanged Convertible Security (or portion thereof) which resulted (either upon its original issuance or upon a revision of its terms) in an adjustment to a Series Preferred Conversion Price pursuant to the terms of Subsection 4.4.4 such Series Preferred Conversion Price shall be readjusted to such Series Preferred Conversion Price as would have obtained had such Option or Convertible Security (or portion thereof) never been issued.

(e) If the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, is calculable at the time such Option or Convertible Security is issued or amended but is subject to adjustment based upon subsequent events, any adjustment to a Series Preferred Conversion Price provided for in this Subsection 4.4.3 shall be effected at the time of such issuance or amendment based on such number of shares or amount of consideration without regard to any provisions for subsequent adjustments (and any subsequent adjustments shall be treated as provided in clauses (b) and (c) of this Subsection 4.4.3). If the number of shares of Common Stock issuable upon the exercise, conversion and/or exchange of any Option or Convertible Security, or the consideration payable to the Corporation upon such exercise, conversion and/or exchange, cannot be calculated at all at the time such Option or Convertible Security is issued or amended, any adjustment to a Series Preferred Conversion Price that would result under the terms of this Subsection 4.4.3 at the time of such issuance or amendment shall instead be effected at the time such number of shares and/or amount of consideration is first calculable (even if subject to subsequent adjustments), assuming for purposes of calculating such adjustment to such Series Preferred Conversion Price that such issuance or amendment took place at the time such calculation can first be made.

4.4.4 Adjustment of Series Preferred Conversion Price Upon Issuance of Additional Shares of Common Stock. In the event the Corporation shall at any time or from time to time after the Series Preferred Original Issue Date issue Additional Shares of Common Stock (including Additional Shares of Common Stock deemed to be issued pursuant to Subsection 4.4.3) and without consideration or for a consideration per share less than the Series Preferred Conversion Price in effect immediately prior to such issue, then the Series Preferred Conversion Price shall be reduced, concurrently with such issue, to a price (calculated to the nearest one-hundredth of a cent) determined in accordance with the following formula:

$$CP_2 = CP_1 * (A + B) \div (A + C)$$

For purposes of the foregoing formula, the following definitions shall apply:

(a) "***CP_2***" shall mean the Series Preferred Conversion Price in effect immediately after such issue of Additional Shares of Common Stock;

(b) "***CP_1***" shall mean the Series Preferred Conversion Price in effect immediately prior to such issue of Additional Shares of Common Stock;

(c) "***A***" shall mean the number of shares of Common Stock outstanding immediately prior to such issue of Additional Shares of Common Stock (treating for this purpose as outstanding all shares of Common Stock issuable upon exercise of Options outstanding immediately prior to such issue or upon conversion or exchange of Convertible Securities (including the Series Preferred Stock) outstanding (assuming exercise of any outstanding Options therefor) immediately prior to such issue);

(d) "***B***" shall mean the number of shares of Common Stock that would have been issued if such Additional Shares of Common Stock had been issued at a price per share equal to CP_1 (determined by dividing the aggregate consideration received by the Corporation in respect of such issue by CP_1); and

(e) "***C***" shall mean the number of such Additional Shares of Common Stock issued in such transaction.

4.4.5 Determination of Consideration. For purposes of this Subsection 4.4, the consideration received by the Corporation for the issue of any Additional Shares of Common Stock shall be computed as follows:

(a) Cash and Property: Such consideration shall:

(i) insofar as it consists of cash, be computed at the aggregate amount of cash received by the Corporation, excluding amounts paid or payable for accrued interest;

(ii) insofar as it consists of property other than cash, be computed at the fair market value thereof at the time of such issue, as determined in good faith by the Board of Directors irrespective of any accounting treatment; and

(iii) in the event Additional Shares of Common Stock are issued together with other shares or securities or other assets of the Corporation for consideration which covers both, be the proportion of such consideration so received, computed as provided in clauses (i) and (ii) above, as determined in good faith by the Board of Directors.

(b) Options and Convertible Securities. The consideration per share received by the Corporation for Additional Shares of Common Stock deemed to have been issued pursuant to Subsection 4.4.3, relating to Options and Convertible Securities, shall be determined by dividing:

(i) The total amount, if any, received or receivable by the Corporation as consideration for the issue of such Options or Convertible Securities, plus the minimum aggregate amount of additional consideration (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such consideration) payable to the Corporation upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the

exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities, by

(ii) the maximum number of shares of Common Stock (as set forth in the instruments relating thereto, without regard to any provision contained therein for a subsequent adjustment of such number) issuable upon the exercise of such Options or the conversion or exchange of such Convertible Securities, or in the case of Options for Convertible Securities, the exercise of such Options for Convertible Securities and the conversion or exchange of such Convertible Securities.

4.4.6 Multiple Closing Dates. In the event the Corporation shall issue on more than one date Additional Shares of Common Stock that are a part of one transaction or a series of related transactions and that would result in an adjustment to the Series Preferred Conversion Price pursuant to the terms of Subsection 4.4.4, then, upon the final such issuance, the Series Preferred Conversion Price shall be readjusted to give effect to all such issuances as if they occurred on the date of the first such issuance (and without giving effect to any additional adjustments as a result of any such subsequent issuances within such period).

4.4.7 Limits on Adjustment. No adjustment shall be made to any Series Preferred Conversion Price in an amount less than one cent ($0.01) per share. Any adjustment required by this Subsection 4.4 shall be rounded to the nearest one cent ($0.01) per share.

4.5 Adjustment for Stock Splits and Combinations. If the Corporation shall at any time or from time to time after the Series Preferred Original Issue Date effect a subdivision of the outstanding Common Stock, the Series Preferred Conversion Price in effect immediately before that subdivision shall be proportionately decreased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be increased in proportion to such increase in the aggregate number of shares of Common Stock outstanding. If the Corporation shall at any time or from time to time after the Series Preferred Original Issue Date combine the outstanding shares of Common Stock, the Series Preferred Conversion Price in effect immediately before the combination shall be proportionately increased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be decreased in proportion to such decrease in the aggregate number of shares of Common Stock outstanding. Any adjustment under this subsection shall become effective at the close of business on the date the subdivision or combination becomes effective.

4.6 Adjustment for Certain Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series Preferred Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable on the Common Stock in additional shares of Common Stock, then and in each such event the Series Preferred Conversion Price in effect

immediately before such event shall be decreased as of the time of such issuance or, in the event such a record date shall have been fixed, as of the close of business on such record date, by multiplying the Series Preferred Conversion Price then in effect by a fraction:

(1) the numerator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date, and

(2) the denominator of which shall be the total number of shares of Common Stock issued and outstanding immediately prior to the time of such issuance or the close of business on such record date plus the number of shares of Common Stock issuable in payment of such dividend or distribution.

Notwithstanding the foregoing: (a) if such record date shall have been fixed and such dividend is not fully paid or if such distribution is not fully made on the date fixed therefor, the Series Preferred Conversion Price shall be recomputed accordingly as of the close of business on such record date and thereafter the Series Preferred Conversion Price shall be adjusted pursuant to this subsection as of the time of actual payment of such dividends or distributions; and (b) no such adjustment shall be made if the holders of Series Preferred Stock simultaneously receive a dividend or other distribution of shares of Common Stock in a number equal to the number of shares of Common Stock as they would have received if all outstanding shares of Series Preferred Stock had been converted into Common Stock on the date of such event.

4.7 Adjustments for Other Dividends and Distributions. In the event the Corporation at any time or from time to time after the Series Preferred Original Issue Date shall make or issue, or fix a record date for the determination of holders of Common Stock entitled to receive, a dividend or other distribution payable in securities of the Corporation (other than a distribution of shares of Common Stock in respect of outstanding shares of Common Stock) or in other property and the provisions of Section 1 do not apply to such dividend or distribution, then, and in each such event, the holders of Series Preferred Stock shall receive, simultaneously with the distribution to the holders of Common Stock, a dividend or other distribution of such securities or other property in an amount equal to the amount of such securities or other property as they would have received if all outstanding shares of Series Preferred Stock had been converted into Common Stock on the date of such event.

4.8 Adjustment for Merger or Reorganization, etc. Subject to the provisions of Subsection 2.3, if there shall occur any reorganization, recapitalization, reclassification, consolidation or merger involving the Corporation in which the Common Stock (but not the Series Preferred Stock) is converted into or exchanged for securities, cash or other property (other than a transaction covered by Subsections 4.4, 4.6 or 4.7), then, following any such reorganization, recapitalization, reclassification, consolidation or merger, each share of Series Preferred Stock shall thereafter be convertible in lieu of the Common Stock into which it was convertible prior to such event into the kind and amount of securities, cash or other property which a holder of the number of shares of Common Stock of the Corporation issuable upon conversion of one share of Series Preferred Stock immediately prior to such reorganization, recapitalization, reclassification, consolidation or merger would have been entitled to receive pursuant to such transaction; and, in such case, appropriate adjustment (as determined in good faith by the Board of Directors) shall be made in the application of the provisions of this Section 4 with respect to the rights and interests thereafter of the holders of the Series Preferred Stock, to the end that the

provisions set forth in this Section 4 (including provisions with respect to changes in and other adjustments of the Series Preferred Conversion Price) shall thereafter be applicable, as nearly as reasonably may be, in relation to any securities or other property thereafter deliverable upon the conversion of the Series Preferred Stock. For the avoidance of doubt, nothing in this Subsection 4.8 shall be construed as preventing the holders of Series Preferred Stock from seeking any appraisal rights to which they are otherwise entitled under the General Corporation Law in connection with a merger triggering an adjustment hereunder, nor shall this Subsection 4.8 be deemed conclusive evidence of the fair value of the shares of Series Preferred Stock in any such appraisal proceeding.

4.9 Certificate as to Adjustments. Upon the occurrence of each adjustment or readjustment of the Series Preferred Conversion Price pursuant to this Section 4, the Corporation at its expense shall, as promptly as reasonably practicable but in any event not later than ten (10) calendar days thereafter, compute such adjustment or readjustment in accordance with the terms hereof and furnish to each holder of Series Preferred Stock a certificate setting forth such adjustment or readjustment (including the kind and amount of securities, cash or other property into which the Series Preferred Stock is convertible) and showing in detail the facts upon which such adjustment or readjustment is based. The Corporation shall, as promptly as reasonably practicable after the written request at any time of any holder of Series Preferred Stock (but in any event not later than ten (10) calendar days thereafter), furnish or cause to be furnished to such holder a certificate setting forth (i) the Series Preferred Conversion Price then in effect, and (ii) the number of shares of Common Stock and the amount, if any, of other securities, cash or property which then would be received upon the conversion of Series Preferred Stock.

4.10 Notice of Record Date. In the event:

(a) the Corporation shall take a record of the holders of its Common Stock (or other capital stock or securities at the time issuable upon conversion of the Series Preferred Stock) for the purpose of entitling or enabling them to receive any dividend or other distribution, or to receive any right to subscribe for or purchase any shares of capital stock of any class or any other securities, or to receive any other security, or

(b) of any capital reorganization of the Corporation, any reclassification of the Common Stock of the Corporation, or any Deemed Liquidation Event, or

(c) of the voluntary or involuntary dissolution, liquidation or winding-up of the Corporation,

then, and in each such case, the Corporation will send or cause to be sent to the holders of the Series Preferred Stock a notice specifying, as the case may be, (i) the record date for such dividend, distribution or right, and the amount and character of such dividend, distribution or right, or (ii) the effective date on which such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up is proposed to take place, and the time, if any is to be fixed, as of which the holders of record of Common Stock (or such other capital stock or securities at the time issuable upon the conversion of the Series Preferred Stock) shall be entitled to exchange their shares of Common Stock (or such other capital stock or securities) for securities or other property deliverable upon such reorganization, reclassification, consolidation, merger, transfer, dissolution, liquidation or winding-up, and the amount per share and character of such exchange applicable to the Series Preferred Stock and the Common Stock. Such notice shall be sent as promptly as reasonably practicable but in any event at least ten (10) calendar days prior to the record date or effective date for the event specified in such notice.

5. Mandatory Conversion.

5.1 Trigger Events. Upon either (a) immediately prior to the closing of the sale of shares of Common Stock to the public in a firm-commitment underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, in which (1) the per share price to the public of Common Stock is at least $12.57 (as adjusted for any stock dividends, combinations, splits, recapitalizations and the like with respect to such shares after the filing date hereof) and (2) the gross proceeds to the Corporation (before deduction of underwriters' commissions and expenses) is at least $100 million (a "***Qualified IPO***"), or (b) the date and time, or the occurrence of an event, specified by vote or written consent of both (1) the holders of a majority of the then-outstanding shares of Series Preferred Stock and (2) the holders of a majority of the outstanding shares of Series D Preferred Stock (the time of such closing or the date and time specified or the time of the event specified in such votes or written consents is referred to herein as the "***Mandatory Conversion Time***"), then (i) all outstanding shares of Series Preferred Stock shall automatically be converted into shares of Common Stock, at the then-effective conversion rate as calculated pursuant to Subsection 4.1.1, and (ii) such shares may not be reissued by the Corporation.

5.2 Procedural Requirements. The Corporation shall send all holders of record of shares of Series Preferred Stock written notice of the Mandatory Conversion Time and the place designated for mandatory conversion of all such shares of Series Preferred Stock pursuant to this Section 5. Such notice need not be sent in advance of the occurrence of the Mandatory Conversion Time. Upon receipt of such notice, each holder of shares of Series Preferred Stock in certificated form shall surrender such holder's certificate or certificates for all such shares (or, if such holder alleges that such certificate has been lost, stolen or destroyed, a lost certificate affidavit and agreement reasonably acceptable to the Corporation to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of such certificate) to the Corporation at the place designated in such notice. If so required by the Corporation, any certificates surrendered for conversion shall be endorsed or accompanied by written instrument or instruments of transfer, in form satisfactory to the Corporation, duly executed by the registered holder or by such holder's attorney, duly authorized in writing. All rights with respect to the Series Preferred Stock converted pursuant to Subsection 5.1, including the rights, if any, to receive notices and vote (other than as a holder of Common Stock), will terminate at the Mandatory Conversion Time (notwithstanding the failure of the holder or holders thereof to surrender any certificates at or prior to such time), except only the rights of the holders thereof, upon surrender of any certificate or certificates of such holders (or lost certificate affidavit and agreement) therefor, to receive the items provided for in the next sentence of this Subsection 5.2. As soon as practicable after the Mandatory Conversion Time and, if applicable, the surrender of any certificate or certificates (or lost certificate affidavit and agreement) for Series Preferred Stock, the Corporation shall (a) issue and deliver to such holder, or to such holder's nominees, a certificate or certificates for the number of full shares of Common Stock issuable on such conversion in accordance with the provisions hereof, and (b) pay cash as provided in Subsection 4.2 in lieu of any fraction of a share of Common Stock otherwise issuable upon such conversion and the payment of any declared but unpaid dividends on the shares of Series Preferred Stock converted. Such converted shares of Series Preferred Stock shall be retired and cancelled and may not be

reissued as shares of such series, and the Corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to reduce the authorized number of shares of Series Preferred Stock accordingly.

6. Redemption. Other than as specifically set forth herein, the Series Preferred Stock is not redeemable at the option of the holder.

7. Redeemed or Otherwise Acquired Shares. Any shares of Series Preferred Stock that are redeemed or otherwise acquired by the Corporation or any of its subsidiaries shall be automatically and immediately cancelled and retired and shall not be reissued, sold or transferred. Neither the Corporation nor any of its subsidiaries may exercise any voting or other rights granted to the holders of Series Preferred Stock following redemption.

8. Waiver. Except as otherwise provided herein, any of the rights, powers, preferences and other terms of the Series Preferred Stock set forth herein may be waived on behalf of all holders of Series Preferred Stock by the affirmative written consent or vote of the holders of at least 60% of the shares of Series Preferred Stock then outstanding (voting together as a single class on an as-converted basis).

9. Notices. Any notice required or permitted by the provisions of this Article FOURTH to be given to a holder of shares of Series Preferred Stock shall be mailed, postage prepaid, to the post office address last shown on the records of the Corporation, or given by electronic communication in compliance with the provisions of the General Corporation Law, and shall be deemed sent upon such mailing or electronic transmission.

FIFTH: Subject to any additional vote required by this Certificate of Incorporation or the Bylaws, in furtherance and not in limitation of the powers conferred by statute, the Board of Directors is expressly authorized to make, repeal, alter, amend and rescind any or all of the Bylaws.

SIXTH: Subject to any additional vote required by this Certificate of Incorporation, the number of directors of the Corporation shall be determined in the manner set forth in the Bylaws.

SEVENTH: Elections of directors need not be by written ballot unless the Bylaws shall so provide.

EIGHTH: Meetings of stockholders may be held within or without the State of Delaware, as the Bylaws may provide. The books of the Corporation may be kept outside the State of Delaware at such place or places as may be designated from time to time by the Board of Directors or in the Bylaws.

NINTH: To the fullest extent permitted by law, a director of the Corporation shall not be personally liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as a director. If the General Corporation Law or any other law of the State of Delaware is amended after approval by the stockholders of this Article NINTH to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director of the Corporation shall be eliminated or limited to the fullest extent permitted by the General Corporation Law as so amended.

Any repeal or modification of the foregoing provisions of this Article NINTH by the stockholders of the Corporation shall not adversely affect any right or protection of a director of the Corporation existing at the time of, or increase the liability of any director of the Corporation with respect to any acts or omissions of such director occurring prior to, such repeal or modification.

TENTH: To the fullest extent permitted by applicable law, the Corporation is authorized to provide indemnification of (and advancement of expenses to) directors, officers and agents of the Corporation (and any other persons to which General Corporation Law permits the Corporation to provide indemnification) through Bylaw provisions, agreements with such agents or other persons, vote of stockholders or disinterested directors or otherwise, in excess of the indemnification and advancement otherwise permitted by Section 145 of the General Corporation Law, subject only to limits created under the General Corporation Law (statutory or non-statutory), with respect to actions for breach of duty to the Corporation, its stockholders, and others.

Any amendment, repeal or modification of the foregoing provisions of this Article TENTH shall not adversely affect any right or protection of any director, officer or other agent of the Corporation existing at the time of, or increase the liability of any director of the Corporation with respect to any acts or omissions of such director, officer or agent occurring prior to, such amendment, repeal or modification.

ELEVENTH: The Corporation renounces, to the fullest extent permitted by law, any interest or expectancy of the Corporation in, or in being offered an opportunity to participate in, any Excluded Opportunity. An "***Excluded Opportunity***" is any matter, transaction or interest that is presented to, or acquired, created or developed by, or which otherwise comes into the possession of (i) any director of the Corporation who is not an employee of the Corporation or any of its subsidiaries, or (ii) any holder of Series Preferred Stock or any partner, member, director, stockholder, employee or agent of any such holder, other than someone who is an employee of the Corporation or any of its subsidiaries (each, a "***Covered Person***"), unless such matter, transaction or interest is presented to, or acquired, created or developed by, or otherwise comes into the possession of, a Covered Person expressly and solely in such Covered Person's capacity as a director of the Corporation.

TWELFTH: Unless the Corporation consents in writing to the selection of an alternative forum, the Court of Chancery in the State of Delaware shall be the sole and exclusive forum for any stockholder (including a beneficial owner) to bring (i) any derivative action or proceeding brought on behalf of the Corporation, (ii) any action asserting a claim of breach of fiduciary duty owed by any director, officer or other employee of the Corporation to the Corporation or the Corporation's stockholders, (iii) any action asserting a claim against the Corporation, its directors, officers or employees arising pursuant to any provision of the General Corporation Law or this Certificate of Incorporation or the Bylaws (as each may be amended and/or restated from time to time), or (iv) any action asserting a claim against the Corporation or its directors, officers or employees governed by the internal affairs doctrine, except for, as to each of (i) through (iv) above, any claim as to which the Court of Chancery determines that there is an indispensable party not subject to the jurisdiction of the Court of Chancery (and the indispensable party does not consent to the personal jurisdiction of the Court of Chancery within ten (10) days following such determination), which is vested in the exclusive jurisdiction of a court or forum other than the Court of Chancery, or for which the Court of Chancery does not have subject matter jurisdiction. If any provision or provisions of this Article TWELFTH shall be held to be invalid,

illegal or unenforceable as applied to any person or entity or circumstance for any reason whatsoever, then, to the fullest extent permitted by law, the validity, legality and enforceability of such provisions in any other circumstance and of the remaining provisions of this Article TWELFTH (including, without limitation, each portion of any sentence of this Article TWELFTH containing any such provision held to be invalid, illegal or unenforceable that is not itself held to be invalid, illegal or unenforceable) and the application of such provision to other persons or entities and circumstances shall not in any way be affected or impaired thereby.

THIRTEENTH: For purposes of Section 500 of the California Corporations Code (to the extent applicable), in connection with any repurchase of shares of Common Stock permitted under this Certificate of Incorporation from employees, officers, directors or consultants of the Corporation in connection with a termination of employment or services pursuant to agreements or arrangements approved by the Board of Directors (in addition to any other consent required under this Certificate of Incorporation), such repurchase may be made without regard to any "preferential dividends arrears amount" or "preferential rights amount" (as those terms are defined in Section 500 of the California Corporations Code). Accordingly, for purposes of making any calculation under California Corporations Code Section 500 in connection with such repurchase, the amount of any "preferential dividends arrears amount" or "preferential rights amount" (as those terms are defined therein) shall be deemed to be zero (0).

* * *

3. That the foregoing amendment and restatement was approved by the holders of the requisite number of shares of this corporation in accordance with Section 228 of the General Corporation Law.

4. That this Amended and Restated Certificate of Incorporation, which restates and integrates and further amends the provisions of this corporation's Certificate of Incorporation, has been duly adopted in accordance with Sections 242 and 245 of the General Corporation Law.

IN WITNESS WHEREOF, this Amended and Restated Certificate of Incorporation has been executed by a duly authorized officer of this corporation on this 23rd day of June, 2020.

By: /s/ Eric Ostertag
Eric Ostertag
Chief Executive Officer

CERTIFICATE OF AMENDMENT TO
AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
POSEIDA THERAPEUTICS, INC.

It is hereby certified that:

1. The name of the corporation is Poseida Therapeutics, Inc. (the "***Corporation***").

2. The Certificate of Incorporation of the Corporation was filed with the Secretary of State of the State of Delaware on December 16, 2014. An Amended and Restated Certificate of Incorporation was filed with the Secretary of State of the State of Delaware on June 23, 2020 (the "***Restated Certificate***").

3. The Restated Certificate is hereby amended as follows:

The first paragraph of Article FOURTH of the Restated Certificate is hereby amended by adding the following at the end of such paragraph:

"Effective at the time this Certificate of Amendment to Amended and Restated Certificate of Incorporation is filed with and accepted by the Secretary of State of the State of Delaware, each outstanding share of Common Stock shall, automatically and without any action on the part of the Corporation or the respective holders thereof, be converted into 0.8019246 shares of Common Stock, without increasing or decreasing the par value of each share of Common Stock (the "***Reverse Split***"); provided, however, that no fractional shares of Common Stock shall be issued as a result of the Reverse Split. In lieu of any fractional shares to which the holder would otherwise be entitled, the Corporation shall pay cash equal to such fraction multiplied by the fair market value of a share of Common Stock as determined by the Board of Directors of the Corporation. The number of authorized shares of Common Stock of the Corporation shall remain as set forth in this Certificate of Incorporation. The Reverse Split shall occur whether or not the certificates representing such shares of Common Stock are surrendered to the Corporation or its transfer agent. The Reverse Split shall be effected on a record holder-by-record holder basis, such that any fractional shares of Common Stock resulting from the Reverse Split and held by a single record holder shall be aggregated."

Article FOURTH (B), Section 5.1 of the Restated Certificate is hereby amended and restated in its entirety as follows:

"Trigger Events. Upon either (a) immediately prior to the closing of the sale of shares of Common Stock to the public in a firm-commitment underwritten public offering pursuant to an effective registration statement under the Securities Act of 1933, as amended, in which (1) the per share price to the public of Common Stock is at least $15.67 (which gives effect to the Reverse Split and as may be further

adjusted for any stock dividends, combinations, splits, recapitalizations and the like with respect to such shares after the filing date hereof) and (2) the gross proceeds to the Corporation (before deduction of underwriters' commissions and expenses) is at least $100 million, or (b) the date and time, or the occurrence of an event, specified by vote or written consent of both (1) the holders of a majority of the then-outstanding shares of Series Preferred Stock and (2) the holders of a majority of the outstanding shares of Series D Preferred Stock (the time of such closing or the date and time specified or the time of the event specified in such votes or written consents is referred to herein as the "***Mandatory Conversion Time***"), then (i) all outstanding shares of Series Preferred Stock shall automatically be converted into shares of Common Stock, at the then-effective conversion rate as calculated pursuant to Subsection 4.1.1, and (ii) such shares may not be reissued by the Corporation. A public offering of Common Stock that results in or involves such automatic conversion, either due to the operation of Section 5.1(a) or pursuant to the vote or written consent referred to in Section 5.1(b), shall be referred to herein as a "***Qualified IPO***"."

4. Pursuant to Section 228(a) of the General Corporation Law of the State of Delaware, the holders of the outstanding capital stock of the Corporation having no less than the minimum number of votes that would be necessary to authorize or take such actions at a meeting at which all shares entitled to vote thereon were present and voted, consented to the adoption of the aforesaid amendment without a meeting, without a vote and without prior notice and that written notice of the taking of such action is being given in accordance with Section 228(e) of the General Corporation Law of the State of Delaware.

5. The amendment of the Restated Certificate herein certified has been duly adopted in accordance with the provisions of Sections 141 and 242 of the General Corporation Law of the State of Delaware.

* * *

IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to Amended and Restated Certificate of Incorporation to be signed by its Chief Executive Officer on July 2, 2020.

POSEIDA THERAPEUTICS, INC.

By: /s/ Eric Ostertag
Eric Ostertag
Chief Executive Officer

AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION OF
POSEIDA THERAPEUTICS, INC.

Eric M. Ostertag, M.D., Ph.D. hereby certifies that:

ONE: He is the duly elected and acting Chief Executive Officer of Poseida Therapeutics, Inc., a Delaware corporation.

TWO: The date of filing of said corporation's original certificate of incorporation with the Delaware Secretary of State was December 16, 2014 under the name Poseida Therapeutics, Inc.

THREE: The Amended and Restated Certificate of Incorporation of the corporation is hereby amended and restated to read in its entirety as follows:

I.

The name of this corporation is Poseida Therapeutics, Inc. (the "***Company***").

II.

The address of the registered office of the Company in the State of Delaware is 251 Little Falls Drive, City of Wilmington, County of New Castle 19808, and the name of its registered agent at such address is Corporation Service Company.

III.

The purpose of the Company is to engage in any lawful act or activity for which a corporation may be organized under the Delaware General Corporation Law ("***DGCL***").

IV.

A. The Company is authorized to issue two classes of stock to be designated, respectively, "***Common Stock***" and "***Preferred Stock***." The total number of shares which the Company is authorized to issue is 260,000,000 shares. 250,000,000 shares shall be Common Stock, each having a par value of $0.0001. 10,000,000 shares shall be Preferred Stock, each having a par value of $0.0001.

B. The Preferred Stock may be issued from time to time in one or more series. The Board of Directors of the Company (the "***Board of Directors***") is hereby expressly authorized to provide for the issue of any or all of the unissued and undesignated shares of the Preferred Stock in one or more series, and to fix the number of shares and to determine or alter for each such series, such voting powers, full or limited, or no voting powers, and such designation, preferences, and relative, participating, optional, or other rights and such qualifications, limitations, or restrictions thereof, as shall be stated and expressed in the resolution or resolutions adopted by the Board of

Directors providing for the issuance of such shares and as may be permitted by the DGCL. The Board of Directors is also expressly authorized to increase or decrease the number of shares of any series subsequent to the issuance of shares of that series, but not below the number of shares of such series then outstanding. In case the number of shares of any series shall be decreased in accordance with the foregoing sentence, the shares constituting such decrease shall resume the status that they had prior to the adoption of the resolution originally fixing the number of shares of such series. The number of authorized shares of Preferred Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the holders of a majority of the voting power of the stock of the Company entitled to vote thereon, without a separate vote of the holders of the Preferred Stock, or of any series thereof, unless a vote of any such holders is required pursuant to the terms of any certificate of designation filed with respect to any series of Preferred Stock.

C. Each outstanding share of Common Stock shall entitle the holder thereof to one vote on each matter properly submitted to the stockholders of the Company for their vote; *provided*, *however*, that, except as otherwise required by law, holders of Common Stock shall not be entitled to vote on any amendment to this Amended and Restated Certificate of Incorporation (this "***Certificate of Incorporation***") (including any certificate of designation filed with respect to any series of Preferred Stock) that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series of Preferred Stock are entitled, either separately or together as a class with the holders of one or more other such series of Preferred Stock, to vote thereon by law or pursuant to this Certificate of Incorporation (including any certificate of designation filed with respect to any series of Preferred Stock).

V.

For the management of the business and for the conduct of the affairs of the Company, and in further definition, limitation and regulation of the powers of the Company, of its directors and of its stockholders or any class thereof, as the case may be, it is further provided that:

A. The management of the business and the conduct of the affairs of the Company shall be vested in its Board of Directors. The number of directors that shall constitute the Board of Directors shall be fixed exclusively by resolutions adopted by a majority of the authorized number of directors constituting the Board of Directors.

B. Subject to the rights of the holders of any series of Preferred Stock to elect additional directors under specified circumstances, the directors shall be divided into three classes designated as Class I, Class II and Class III, respectively. The Board of Directors is authorized to assign members of the Board of Directors already in office to such classes at the time the classification becomes effective. At the first annual meeting of stockholders following the initial classification of the Board of Directors, the term of office of the Class I directors shall expire and Class I directors shall be elected for a full term of three years. At the second annual meeting of stockholders following such initial classification, the term of office of the Class II directors shall expire and Class II directors shall be elected for a full term of three years. At the third annual meeting of stockholders following such initial classification, the term of office of the Class III directors shall expire and Class III directors shall be elected for a full term of three years. At each succeeding annual meeting of stockholders, directors shall be elected for a full term of three years to succeed the directors of the class whose terms expire at such annual meeting.

Notwithstanding the foregoing provisions of this section, each director shall serve until his or her successor is duly elected and qualified or until his or her earlier death, resignation or removal. No decrease in the number of directors constituting the Board of Directors shall shorten the term of any incumbent director.

C. Subject to the rights of any series of Preferred Stock that may be designated from time to time to elect additional directors under specified circumstances, neither the Board of Directors nor any individual director may be removed without cause. Subject to any limitations imposed by applicable law, any individual director or directors may be removed with cause by the affirmative vote of the holders of at least 66 2/3% of the voting power of all then-outstanding shares of capital stock of the Company entitled to vote generally at an election of directors, voting together as a single class.

D. Subject to any limitations imposed by applicable law and subject to the rights of the holders of any series of Preferred Stock that may be designated from time to time, any vacancies on the Board of Directors resulting from death, resignation, disqualification, removal or other causes and any newly created directorships resulting from any increase in the number of directors, shall, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships shall be filled by the stockholders and except as otherwise provided by applicable law, be filled only by the affirmative vote of a majority of the directors then in office, even though less than a quorum of the Board of Directors, and not by the stockholders. Any director elected in accordance with the preceding sentence shall hold office for the remainder of the full term of the director for which the vacancy was created or occurred and until such director's successor shall have been elected and qualified.

E. The Board of Directors is expressly empowered to adopt, amend or repeal the Amended and Restated Bylaws of the Company (the "***Bylaws***"). Any adoption, amendment or repeal of the Bylaws by the Board of Directors shall require the approval of a majority of the authorized number of directors. The stockholders shall also have power to adopt, amend or repeal the Bylaws; *provided*, *however,* that, in addition to any vote of the holders of any class or series of stock of the Company required by law or by this Certificate of Incorporation, such action by stockholders shall require the affirmative vote of the holders of at least 66 2/3% of the voting power of all of the then-outstanding shares of the capital stock of the Company entitled to vote generally in the election of directors, voting together as a single class.

F. The directors of the Company need not be elected by written ballot unless the Bylaws so provide.

G. No action shall be taken by the stockholders of the Company except at an annual or special meeting of stockholders called in accordance with the Bylaws. No action shall be taken by the stockholders of the Company by written consent or electronic transmission.

H. Advance notice of stockholder nominations for the election of directors and of business to be brought by stockholders before any meeting of the stockholders of the Company shall be given in the manner provided in the Bylaws.

VI.

A. The liability of a director of the Company for monetary damages shall be eliminated to the fullest extent under applicable law.

B. To the fullest extent permitted by applicable law, the Company is authorized to provide indemnification of (and advancement of expenses to) directors, officers and agents of the Company (and any other persons to which applicable law permits the Company to provide indemnification) through Bylaw provisions, agreements with such agents or other persons, vote of stockholders or disinterested directors or otherwise in excess of the indemnification and advancement otherwise permitted by such applicable law. If applicable law is amended after approval by the stockholders of this Article VI to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of a director to the Company shall be eliminated or limited to the fullest extent permitted by applicable law as so amended.

C. Any repeal or modification of this Article VI shall only be prospective and shall not affect the rights or protections or increase the liability of any director under this Article VI in effect at the time of the alleged occurrence of any act or omission to act giving rise to liability or indemnification.

VII.

A. Unless the Company consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware (or, if and only if the Court of Chancery of the State of Delaware lacks subject matter jurisdiction, any state court located within the State of Delaware or, if and only if all such state courts lack subject matter jurisdiction, the federal district court for the District of Delaware) shall be the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law: (1) any derivative action or proceeding brought on behalf of the Company; (2) any action or proceeding asserting a claim of breach of a fiduciary duty owed by any current or former director, officer or other employee of the Company, to the Company or the Company's stockholders; (3) any action or proceeding asserting a claim against the Company or any current or former director, officer or other employee of the Company, arising out of or pursuant to any provision of the DGCL, this Certificate of Incorporation or the Amended and Restated Bylaws of the Company (as each may be amended from time to time); (4) any action or proceeding to interpret, apply, enforce or determine the validity of this Certificate of Incorporation or the Amended and Restated Bylaws of the Company (including any right, obligation, or remedy thereunder); (5) any action or proceeding as to which the DGCL confers jurisdiction to the Court of Chancery of the State of Delaware; and (6) any action asserting a claim against the Company or any director, officer or other employee of the Company, governed by the internal affairs doctrine, in all cases to the fullest extent permitted by law and subject to the court's having personal jurisdiction over the indispensable parties named as defendants. This Section A of Article VII shall not apply to suits brought to enforce a duty or liability created by the Securities Act of 1933, as amended (the "***Securities Act***"), or the Securities Exchange Act of 1934, as amended, or any other claim for which the federal courts have exclusive jurisdiction.

B. Unless the Company consents in writing to the selection of an alternative forum, to the fullest extent permitted by law, the federal district courts of the United States of America shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act.

C. Any person or entity holding, owning or otherwise acquiring any interest in any security of the Company shall be deemed to have notice of and to have consented to the provisions of this Certificate of Incorporation.

VIII.

A. The Company reserves the right to amend, alter, change or repeal any provision contained in this Certificate of Incorporation, in the manner now or hereafter prescribed by statute, except as provided in Section B of this Article VIII, and all rights conferred upon the stockholders herein are granted subject to this reservation.

B. Notwithstanding any other provisions of this Certificate of Incorporation or any provision of law which might otherwise permit a lesser vote or no vote, but in addition to any affirmative vote of the holders of any particular class or series of the capital stock of the Company required by law or by this Certificate of Incorporation or any certificate of designation filed with respect to a series of Preferred Stock that may be designated from time to time, subject to the rights of the holders of any series of Preferred Stock, the affirmative vote of the holders of at least 66 2/3% of the voting power of all of the then-outstanding shares of capital stock of the Company entitled to vote generally in the election of directors, voting together as a single class, shall be required to alter, amend or repeal Articles V, VI, VII and VIII of this Certificate of Incorporation.

* * * *

FOUR: This Certificate of Incorporation has been duly adopted and approved by the Board of Directors and by written consent of the stockholders in accordance with Sections 228, 242 and 245 of the DGCL and written notice of such action has been given as provided in section 228 of the DGCL.

[Signature page follows]

IN WITNESS WHEREOF, Poseida Therapeutics, Inc. has caused this Amended and Restated Certificate of Incorporation to be signed by its Chief Executive Officer this ___ day of ___, 2020.

POSEIDA THERAPEUTICS, INC.

ERIC M. OSTERTAG, M.D., PH.D.
Chief Executive Officer

AMENDED AND RESTATED BYLAWS OF POSEIDA THERAPEUTICS, INC.

ARTICLE I

OFFICES

Section 1. Registered Office. The registered office of the corporation in the State of Delaware shall be in the City of Wilmington, County of New Castle.

Section 2. Other Offices. The corporation shall also have and maintain an office or principal place of business at such place as may be fixed by the corporation's Board of Directors (the "***Board of Directors***"), and may also have offices at such other places, both within and without the State of Delaware as the Board of Directors may from time to time determine or the business of the corporation may require.

ARTICLE II

CORPORATE SEAL

Section 3. Corporate Seal. The Board of Directors may adopt a corporate seal. The corporate seal shall consist of a die bearing the name of the corporation and the inscription, "Corporate Seal-Delaware." Said seal may be used by causing it or a facsimile thereof to be impressed or affixed or reproduced or otherwise.

ARTICLE III

STOCKHOLDERS' MEETINGS

Section 4. Place of Meetings. Meetings of the stockholders of the corporation may be held at such place, either within or without the State of Delaware, as may be determined from time to time by the Board of Directors. The Board of Directors may, in its sole discretion, determine that the meeting shall not be held at any place, but may instead be held solely by means of remote communication as provided under the Delaware General Corporation Law (the "***DGCL***").

Section 5. Annual Meetings.

(a) The annual meeting of the stockholders of the corporation, for the purpose of election of directors and for such other business as may properly come before it, shall be held on such date and at such time as may be designated from time to time by the Board of Directors. Nominations of persons for election to the Board of Directors of the corporation and the proposal of business to be considered by the stockholders may be made at an annual meeting of stockholders: (i) pursuant to the corporation's notice of meeting of stockholders (with respect to business other than nominations); (ii) brought specifically by or at the direction of the Board of Directors; or (iii) by any stockholder of the corporation who was a stockholder of record at the

time of giving the stockholder's notice provided for in Section 5(b) of these Amended and Restated Bylaws (the "***Bylaws***"), who is entitled to vote at the meeting and who complied with the notice procedures set forth in this Section 5. For the avoidance of doubt, clause (iii) above shall be the exclusive means for a stockholder to make nominations and submit other business (other than matters properly included in the corporation's notice of meeting of stockholders and proxy statement under Rule 14a-8 under the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder (the "***1934 Act***")) before an annual meeting of stockholders.

(b) At an annual meeting of the stockholders, only such business shall be conducted as is a proper matter for stockholder action under Delaware law and as shall have been properly brought before the meeting.

(i) For nominations for the election to the Board of Directors to be properly brought before an annual meeting by a stockholder pursuant to clause (iii) of Section 5(a) of these Bylaws, the stockholder must deliver written notice to the Secretary at the principal executive offices of the corporation on a timely basis as set forth in Section 5(b)(iii) of these Bylaws and must update and supplement such written notice on a timely basis as set forth in Section 5(c) of these Bylaws. Such stockholder's notice shall set forth: (A) as to each nominee such stockholder proposes to nominate at the meeting: (1) the name, age, business address and residence address of such nominee; (2) the principal occupation or employment of such nominee; (3) the class and number of shares of each class of capital stock of the corporation which are owned of record and beneficially by such nominee; (4) the date or dates on which such shares were acquired and the investment intent of such acquisition; (5) with respect to each nominee for election or re-election to the Board of Directors, include a completed and signed questionnaire, representation and agreement required by Section 5(e) of these Bylaws; and (6) such other information concerning such nominee as would be required to be disclosed in a proxy statement soliciting proxies for the election of such nominee as a director in an election contest (even if an election contest is not involved), or that is otherwise required to be disclosed pursuant to Section 14 of the 1934 Act and the rules and regulations promulgated thereunder (including such person's written consent to being named as a nominee and to serving as a director if elected); and (B) the information required by Section 5(b)(iv) of these Bylaws. The corporation may require any proposed nominee to furnish such other information as it may reasonably require to determine the eligibility of such proposed nominee to serve as an independent director of the corporation or that could be material to a reasonable stockholder's understanding of the independence, or lack thereof, of such proposed nominee.

(ii) Other than proposals sought to be included in the corporation's proxy materials pursuant to Rule 14(a)-8 under the 1934 Act, for business other than nominations for the election to the Board of Directors to be properly brought before an annual meeting by a stockholder pursuant to clause (iii) of Section 5(a) of these Bylaws, the stockholder must deliver written notice to the Secretary at the principal executive offices of the corporation on a timely basis as set forth in Section 5(b)(iii) of these Bylaws, and must update and supplement such written notice on a timely basis as set forth in Section 5(c) of these Bylaws. Such stockholder's notice shall set forth: (A) as to each matter such stockholder proposes to bring before the meeting, a brief description of the business desired to be brought before the meeting, the reasons for conducting such business at the meeting, and any material interest (including any anticipated benefit of such business to any Proponent (as defined below) other than solely as a result of its ownership of the corporation's capital stock, that is material to any Proponent individually, or to the Proponents in the aggregate) in such business of any Proponent; and (B) the information required by Section 5(b)(iv) of these Bylaws.

(iii) To be timely, the written notice required by Section 5(b)(i) or 5(b)(ii) of these Bylaws must be received by the Secretary at the principal executive offices of the corporation not later than the close of business on the 90th day nor earlier than the close of business on the 120th day prior to the first anniversary of the preceding year's annual meeting; *provided, however,* that, subject to the last sentence of this Section 5(b)(iii), in the event that the date of the annual meeting is advanced more than 30 days prior to or delayed by more than 30 days after the anniversary of the preceding year's annual meeting, notice by the stockholder to be timely must be so received not earlier than the close of business on the 120th day prior to such annual meeting and not later than the close of business on the later of the 90th day prior to such annual meeting or the 10th day following the day on which public announcement of the date of such meeting is first made. In no event shall an adjournment or a postponement of an annual meeting for which notice has been given, or the public announcement thereof has been made, commence a new time period for the giving of a stockholder's notice as described above.

(iv) The written notice required by Section 5(b)(i) or 5(b)(ii) of these Bylaws shall also set forth, as of the date of the notice and as to the stockholder giving the notice and the beneficial owner, if any, on whose behalf the nomination or proposal is made (each, a "***Proponent***" and collectively, the "***Proponents***"): (A) the name and address of each Proponent, as they appear on the corporation's books; (B) the class, series and number of shares of the corporation that are owned beneficially and of record by each Proponent; (C) a description of any agreement, arrangement or understanding (whether oral or in writing) with respect to such nomination or proposal between or among any Proponent and any of its affiliates or associates, and any others (including their names) acting in concert, or otherwise under the agreement, arrangement or understanding, with any of the foregoing; (D) a representation that the Proponents are holders of record or beneficial owners, as the case may be, of shares of the corporation entitled to vote at the meeting and intend to appear in person or by proxy at the meeting to nominate the person or persons specified in the notice (with respect to a notice under Section 5(b)(i) of these Bylaws) or to propose the business that is specified in the notice (with respect to a notice under Section 5(b)(ii) of these Bylaws); (E) a representation as to whether the Proponents intend to deliver a proxy statement and form of proxy to holders of a sufficient number of holders of the corporation's voting shares to elect such nominee or nominees (with respect to a notice under Section 5(b)(i) of these Bylaws) or to carry such proposal (with respect to a notice under Section 5(b)(ii) of these Bylaws); (F) to the extent known by any Proponent, the name and address of any other stockholder supporting the proposal on the date of such stockholder's notice; and (G) a description of all Derivative Transactions (as defined below) by each Proponent during the previous 12 month period, including the date of the transactions and the class, series and number of securities involved in, and the material economic terms of, such Derivative Transactions.

For purposes of Sections 5 and 6 of these Bylaws, a "***Derivative Transaction***" means any agreement, arrangement, interest or understanding entered into by, or on behalf or for the benefit of, any Proponent or any of its affiliates or associates, whether record or beneficial:

(w) the value of which is derived in whole or in part from the value of any class or series of shares or other securities of the corporation;

(x) which otherwise provides any direct or indirect opportunity to gain or share in any gain derived from a change in the value of securities of the corporation;

(y) the effect or intent of which is to mitigate loss, manage risk or benefit of security value or price changes; or

(z) which provides the right to vote or increase or decrease the voting power of, such Proponent, or any of its affiliates or associates, with respect to any securities of the corporation,

which agreement, arrangement, interest or understanding may include, without limitation, any option, warrant, debt position, note, bond, convertible security, swap, stock appreciation right, short position, profit interest, hedge, right to dividends, voting agreement, performance-related fee or arrangement to borrow or lend shares (whether or not subject to payment, settlement, exercise or conversion in any such class or series), and any proportionate interest of such Proponent in the securities of the corporation held by any general or limited partnership, or any limited liability company, of which such Proponent is, directly or indirectly, a general partner or managing member.

(c) A stockholder providing written notice required by Section 5(b)(i) or (ii) of these Bylaws shall update and supplement such notice in writing, if necessary, so that the information provided or required to be provided in such notice is true and correct in all material respects as of (i) the record date for the meeting and (ii) the date that is five business days prior to the meeting and, in the event of any adjournment or postponement thereof, five business days prior to such adjourned or postponed meeting. In the case of an update and supplement pursuant to clause (i) of this Section 5(c), such update and supplement shall be received by the Secretary at the principal executive offices of the corporation not later than five business days after the record date for the meeting. In the case of an update and supplement pursuant to clause (ii) of this Section 5(c), such update and supplement shall be received by the Secretary at the principal executive offices of the corporation not later than two business days prior to the date for the meeting, and, in the event of any adjournment or postponement thereof, two business days prior to such adjourned or postponed meeting.

(d) Notwithstanding anything in Section 5(b)(iii) of these Bylaws to the contrary, in the event that the number of directors in an Expiring Class (as defined below) is increased and there is no public announcement of the appointment of a director to such class, or, if no appointment was made, of the vacancy in such class, made by the corporation at least 10 days before the last day a stockholder may deliver a notice of nomination in accordance with Section 5(b)(iii) of these Bylaws, a stockholder's notice required by this Section 5 and which complies with the requirements in Section 5(b)(i) of these Bylaws, other than the timing requirements in Section 5(b)(iii) of these Bylaws, shall also be considered timely, but only with respect to nominees for any new positions in such Expiring Class created by such increase, if it shall be received by the Secretary at the principal executive offices of the corporation not later than the close of business on the 10th day following the day on which such public announcement is first made by the corporation. For purposes of this Section 5, an "***Expiring Class***" shall mean a class of directors whose term shall expire at the next annual meeting of stockholders.

(e) To be eligible to be a nominee for election or re-election as a director of the corporation pursuant to a nomination under clause (iii) of Section 5(a) of these Bylaws, such proposed nominee or a person on such proposed nominee's behalf must deliver (in accordance with the time periods prescribed for delivery of notice under Section 5(b)(iii) or 5(d) of these Bylaws, as applicable) to the Secretary at the principal executive offices of the corporation a written questionnaire with respect to the background and qualification of such proposed nominee and the background of any other person or entity on whose behalf the nomination is being made (which questionnaire shall be provided by the Secretary upon written request) and a written representation and agreement (in the form provided by the Secretary upon written request) that such person (i) is not and will not become a party to (A) any agreement, arrangement or understanding with, and has not given any commitment or assurance to, any person or entity as to how such person, if elected as a director of the corporation, will act or vote on any issue or question (a "***Voting Commitment***") that has not been disclosed to the corporation in the questionnaire or (B) any Voting Commitment that could limit or interfere with such person's ability to comply, if elected as a director of the corporation, with such person's fiduciary duties under applicable law; (ii) is not and will not become a party to any agreement, arrangement or understanding with any person or entity other than the corporation with respect to any direct or indirect compensation, reimbursement or indemnification in connection with service or action as a director of the corporation that has not been disclosed therein; and (iii) in such person's individual capacity and on behalf of any person or entity on whose behalf the nomination is being made, would be in compliance, if elected as a director of the corporation, and will comply with, all applicable publicly disclosed corporate governance, conflict of interest, confidentiality and stock ownership and trading policies and guidelines of the corporation.

(f) A person shall not be eligible for election or re-election as a director unless the person is nominated either in accordance with clause (ii) of Section 5(a) of these Bylaws, or in accordance with clause (iii) of Section 5(a) of these Bylaws. Except as otherwise required by law, the chairman of the meeting shall have the power and duty to determine whether a nomination or any business proposed to be brought before the meeting was made, or proposed, as the case may be, in accordance with the procedures set forth in these Bylaws and, if any proposed nomination or business is not in compliance with these Bylaws, or the Proponent does not act in accordance with the representations in Sections 5(b)(iv)(D) and 5(b)(iv)(E) of these Bylaws, to declare that such proposal or nomination shall not be presented for stockholder action at the meeting and shall be disregarded, notwithstanding that proxies in respect of such nominations or such business may have been solicited or received.

(g) Notwithstanding the foregoing provisions of this Section 5, in order to include information with respect to a stockholder proposal in the proxy statement and form of proxy for a stockholders' meeting, a stockholder must also comply with all applicable requirements of the 1934 Act and the rules and regulations thereunder. Nothing in these Bylaws shall be deemed to affect any rights of stockholders to request inclusion of proposals in the corporation's proxy statement pursuant to Rule 14a-8 under the 1934 Act; *provided, however,* that any references in these Bylaws to the 1934 Act or the rules and regulations thereunder are not intended to and shall not limit the requirements applicable to proposals and/or nominations to be considered pursuant to Section 5(a)(iii) of these Bylaws.

(h) For purposes of Sections 5 and 6 of these Bylaws,

(i) "***public announcement***" shall mean disclosure in a press release reported by the Dow Jones News Service, Associated Press or comparable national news service or in a document publicly filed by the corporation with the Securities and Exchange Commission pursuant to Section 13, 14 or 15(d) of the 1934 Act; and

(ii) "***affiliates***" and "***associates***" shall have the meanings set forth in Rule 405 under the Securities Act of 1933, as amended (the "***1933 Act***").

Section 6. Special Meetings.

(a) Special meetings of the stockholders of the corporation may be called, for any purpose as is a proper matter for stockholder action under Delaware law, by (i) the Chairman of the Board of Directors, (ii) the Chief Executive Officer, or (iii) the Board of Directors pursuant to a resolution adopted by a majority of the total number of authorized directors (whether or not there exist any vacancies in previously authorized directorships at the time any such resolution is presented to the Board of Directors for adoption).

(b) For a special meeting called pursuant to Section 6(a) of these Bylaws, the Board of Directors shall determine the time and place, if any, of such special meeting. Upon determination of the time and place, if any, of the meeting, the Secretary shall cause a notice of meeting to be given to the stockholders entitled to vote, in accordance with the provisions of Section 7 of these Bylaws. No business may be transacted at such special meeting otherwise than as specified in the notice of meeting.

(c) Nominations of persons for election to the Board of Directors may be made at a special meeting of stockholders at which directors are to be elected (i) by or at the direction of the Board of Directors or (ii) by any stockholder of the corporation who is a stockholder of record at the time of giving notice provided for in this paragraph, who shall be entitled to vote at the meeting and who delivers written notice to the Secretary of the corporation setting forth the information required by Section 5(b)(i) of these Bylaws. In the event the corporation calls a special meeting of stockholders for the purpose of electing one or more directors to the Board of Directors, any such stockholder of record may nominate a person or persons (as the case may be), for election to such position(s) as specified in the corporation's notice of meeting, if written notice setting forth the information required by Section 5(b)(i) of these Bylaws shall be received by the Secretary at the principal executive offices of the corporation not later than the close of business on the later of the 90th day prior to such meeting or the 10th day following the day on which public announcement is first made of the date of the special meeting and of the nominees proposed by the Board of Directors to be elected at such meeting. The stockholder shall also update and supplement such information as required under Section 5(c) of these Bylaws. In no event shall an adjournment or a postponement of a special meeting for which notice has been given, or the public announcement thereof has been made, commence a new time period for the giving of a stockholder's notice as described above.

(d) Notwithstanding the foregoing provisions of this Section 6, a stockholder must also comply with all applicable requirements of the 1934 Act and the rules and regulations thereunder with respect to matters set forth in this Section 6. Nothing in these Bylaws shall be deemed to affect any rights of stockholders to request inclusion of proposals in the corporation's proxy statement pursuant to Rule 14a-8 under the 1934 Act; *provided, however,* that any references in these Bylaws to the 1934 Act or the rules and regulations thereunder are not intended to and shall not limit the requirements applicable to nominations for the election to the Board of Directors to be considered pursuant to Section 6(c) of these Bylaws.

Section 7. Notice of Meetings. Except as otherwise provided by law, notice, given in writing or by electronic transmission, of each meeting of stockholders shall be given not less than 10 nor more than 60 days before the date of the meeting to each stockholder entitled to vote at such meeting, such notice to specify the place, if any, date and hour, in the case of special meetings, the purpose or purposes of the meeting, and the means of remote communications, if any, by which stockholders and proxy holders may be deemed to be present in person and vote at any such meeting. If mailed, notice is deemed given when deposited in the United States mail, postage prepaid, directed to the stockholder at such stockholder's address as it appears on the records of the corporation. If sent via electronic transmission, notice is deemed given as of the sending time recorded at the time of transmission. Notice of the time, place, if any, and purpose of any meeting of stockholders may be waived in writing, signed by the person entitled to notice thereof, or by electronic transmission by such person, either before or after such meeting, and will be waived by any stockholder by his or her attendance thereat in person, by remote communication, if applicable, or by proxy, except when the stockholder attends a meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Any stockholder so waiving notice of such meeting shall be bound by the proceedings of any such meeting in all respects as if due notice thereof had been given.

Section 8. Quorum. At all meetings of stockholders, except where otherwise provided by statute or by the corporation's Amended and Restated Certificate of Incorporation ("***Certificate of Incorporation***"), or by these Bylaws, the presence, in person, by remote communication, if applicable, or by proxy duly authorized, of the holders of a majority of the outstanding shares of stock entitled to vote shall constitute a quorum for the transaction of business. In the absence of a quorum, any meeting of stockholders may be adjourned, from time to time, either by the chairman of the meeting or by vote of the holders of a majority of the shares represented thereat, but no other business shall be transacted at such meeting. The stockholders present at a duly called or convened meeting, at which a quorum is present, may continue to transact business until adjournment, notwithstanding the withdrawal of enough stockholders to leave less than a quorum. Except as otherwise provided by statute or by applicable stock exchange rules, or by the Certificate of Incorporation or these Bylaws, in all matters other than the election of directors, the affirmative vote of the majority of shares present in person, by remote communication, if applicable, or represented by proxy at the meeting and entitled to vote generally on the subject matter shall be the act of the stockholders. Except as otherwise provided by statute, the Certificate of Incorporation or these Bylaws, directors shall be elected by a plurality of the votes of the shares present in person, by remote communication, if applicable, or represented by proxy at the meeting and entitled to vote generally on the election of directors. Where a separate vote by a class or classes or series is required, except where

otherwise provided by statute or by the Certificate of Incorporation or these Bylaws, a majority of the outstanding shares of such class or classes or series, present in person, by remote communication, if applicable, or represented by proxy duly authorized, shall constitute a quorum entitled to take action with respect to that vote on that matter. Except where otherwise provided by statute or by the Certificate of Incorporation or these Bylaws, the affirmative vote of the majority (plurality, in the case of the election of directors) of shares of such class or classes or series present in person, by remote communication, if applicable, or represented by proxy at the meeting shall be the act of such class or classes or series.

Section 9. Adjournment and Notice of Adjourned Meetings. Any meeting of stockholders, whether annual or special, may be adjourned from time to time either by the chairman of the meeting or by the vote of a majority of the shares present in person, by remote communication, if applicable, or represented by proxy at the meeting. When a meeting is adjourned to another time or place, if any, notice need not be given of the adjourned meeting if the time and place, if any, thereof are announced at the meeting at which the adjournment is taken. At the adjourned meeting, the corporation may transact any business which might have been transacted at the original meeting. If the adjournment is for more than 30 days or if after the adjournment a new record date is fixed for the adjourned meeting, a notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting.

Section 10. Voting Rights. For the purpose of determining those stockholders entitled to vote at any meeting of the stockholders, except as otherwise provided by law, only persons in whose names shares stand on the stock records of the corporation on the record date, as provided in Section 12 of these Bylaws, shall be entitled to vote at any meeting of stockholders. Every person entitled to vote shall have the right to do so either in person, by remote communication, if applicable, or by an agent or agents authorized by a proxy granted in accordance with Delaware law. An agent so appointed need not be a stockholder. No proxy shall be voted after three years from its date of creation unless the proxy provides for a longer period.

Section 11. Joint Owners of Stock. If shares or other securities having voting power stand of record in the names of two or more persons, whether fiduciaries, members of a partnership, joint tenants, tenants in common, tenants by the entirety, or otherwise, or if two or more persons have the same fiduciary relationship respecting the same shares, unless the Secretary is given written notice to the contrary and is furnished with a copy of the instrument or order appointing them or creating the relationship wherein it is so provided, their acts with respect to voting shall have the following effect: (a) if only one votes, his or her act binds all; (b) if more than one votes, the act of the majority so voting binds all; or (c) if more than one votes, but the vote is evenly split on any particular matter, each faction may vote the securities in question proportionally, or may apply to the Delaware Court of Chancery for relief as provided in the DGCL, Section 217(b). If the instrument filed with the Secretary shows that any such tenancy is held in unequal interests, a majority or even-split for the purpose of clause (c) of this Section 11 shall be a majority or even-split in interest.

Section 12. List of Stockholders. The Secretary shall prepare and make, at least 10 days before every meeting of stockholders, a complete list of the stockholders entitled to vote at said meeting, arranged in alphabetical order, showing the address of each stockholder and the number of shares registered in the name of each stockholder. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting, (a) on a reasonably accessible electronic network, provided that the information required to gain access to such list is provided with the notice of the meeting, or (b) during ordinary business hours, at the principal place of business of the corporation. In the event that the corporation determines to make the list available on an electronic network, the corporation may take reasonable steps to ensure that such information is available only to stockholders of the corporation. The list shall be open to examination of any stockholder during the time of the meeting as provided by law.

Section 13. Action Without Meeting. No action shall be taken by the stockholders except at an annual or special meeting of stockholders called in accordance with these Bylaws, and no action shall be taken by the stockholders by written consent or electronic transmission.

Section 14. Organization.

(a) At every meeting of stockholders, the Chairman of the Board of Directors, or, if a Chairman has not been appointed or is absent, the President, or, if the President is absent, a chairman of the meeting chosen by a majority in interest of the stockholders entitled to vote, present in person or by proxy, shall act as chairman. The Secretary, or, in his or her absence, an Assistant Secretary directed to do so by the President, shall act as secretary of the meeting.

(b) The Board of Directors of the corporation shall be entitled to make such rules or regulations for the conduct of meetings of stockholders as it shall deem necessary, appropriate or convenient. Subject to such rules and regulations of the Board of Directors, if any, the chairman of the meeting shall have the right and authority to prescribe such rules, regulations and procedures and to do all such acts as, in the judgment of such chairman, are necessary, appropriate or convenient for the proper conduct of the meeting, including, without limitation, establishing an agenda or order of business for the meeting, rules and procedures for maintaining order at the meeting and the safety of those present, limitations on participation in such meeting to stockholders of record of the corporation and their duly authorized and constituted proxies and such other persons as the chairman shall permit, restrictions on entry to the meeting after the time fixed for the commencement thereof, limitations on the time allotted to questions or comments by participants and regulation of the opening and closing of the polls for balloting on matters which are to be voted on by ballot. The date and time of the opening and closing of the polls for each matter upon which the stockholders will vote at the meeting shall be announced at the meeting. Unless and to the extent determined by the Board of Directors or the chairman of the meeting, meetings of stockholders shall not be required to be held in accordance with rules of parliamentary procedure.

ARTICLE IV

DIRECTORS

Section 15. Number and Term of Office. The authorized number of directors of the corporation shall be fixed in accordance with the Certificate of Incorporation. Directors need not be stockholders unless so required by the Certificate of Incorporation. If for any cause, the directors shall not have been elected at an annual meeting, they may be elected as soon thereafter as convenient at a special meeting of the stockholders called for that purpose in the manner provided in these Bylaws.

Section 16. Powers. The business and affairs of the corporation shall be managed by or under the direction of the Board of Directors, except as may be otherwise provided by statute or by the Certificate of Incorporation.

Section 17. Classes of Directors. Subject to the rights of the holders of any series of Preferred Stock to elect additional directors under specified circumstances, the directors shall be divided into three classes designated as Class I, Class II and Class III, respectively. The Board of Directors is authorized to assign members of the Board of Directors already in office to such classes at the time the classification becomes effective. At the first annual meeting of stockholders following the initial classification of the Board of Directors, the term of office of the Class I directors shall expire and Class I directors shall be elected for a full term of three years. At the second annual meeting of stockholders following such initial classification, the term of office of the Class II directors shall expire and Class II directors shall be elected for a full term of three years. At the third annual meeting of stockholders following such initial classification, the term of office of the Class III directors shall expire and Class III directors shall be elected for a full term of three years. At each succeeding annual meeting of stockholders, directors shall be elected for a full term of three years to succeed the directors of the class whose terms expire at such annual meeting.

Notwithstanding the foregoing provisions of this Section 17, each director shall serve until his or her successor is duly elected and qualified or until his or her earlier death, resignation or removal. No decrease in the number of directors constituting the Board of Directors shall shorten the term of any incumbent director.

Section 18. Vacancies. Unless otherwise provided in the Certificate of Incorporation, and subject to the rights of the holders of any series of Preferred Stock, any vacancies on the Board of Directors resulting from death, resignation, disqualification, removal or other causes and any newly created directorships resulting from any increase in the number of directors shall, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships shall be filled by stockholders, be filled only by the affirmative vote of a majority of the directors then in office, even though less than a quorum of the Board of Directors, or by a sole remaining director, and not by the stockholders, *provided*, *however*, that whenever the holders of any class or classes of stock or series thereof are entitled to elect one or more directors by the provisions of the Certificate of Incorporation, vacancies and newly created directorships of such class or classes or series shall, unless the Board of Directors determines by resolution that any such vacancies or newly created directorships shall be filled by stockholders, be filled by a majority of the directors elected by such class or classes or series thereof then in office, or by a sole remaining director so elected, and not by the stockholders. Any director elected in accordance with the preceding sentence shall hold office for the remainder of the full term of the director for which the vacancy was created or occurred and until such director’s successor shall have been elected and qualified. A vacancy in the Board of Directors shall be deemed to exist under this Bylaw in the case of the death, removal or resignation of any director.

Section 19. Resignation. Any director may resign at any time by delivering his or her notice in writing or by electronic transmission to the Secretary, such resignation to specify whether it will be effective at a particular time. If no such specification is made, it shall be deemed effective at the time of delivery to the Secretary. When one or more directors shall resign from the Board of Directors, effective at a future date, a majority of the directors then in office, including those who have so resigned, shall have power to fill such vacancy or vacancies, the vote thereon to take effect when such resignation or resignations shall become effective, and each director so chosen shall hold office for the unexpired portion of the term of the director whose place shall be vacated and until his successor shall have been duly elected and qualified.

Section 20. Removal.

(a) Subject to the rights of any series of Preferred Stock to elect additional directors under specified circumstances, neither the Board of Directors nor any individual director may be removed without cause.

(b) Subject to any limitation imposed by law, any individual director or directors may be removed with cause by the affirmative vote of the holders of at least 66 2/3% of the voting power of all then outstanding shares of capital stock of the corporation entitled to vote generally at an election of directors.

Section 21. Meetings.

(a) Regular Meetings. Unless otherwise restricted by the Certificate of Incorporation, regular meetings of the Board of Directors may be held at any time or date and at any place within or without the State of Delaware which has been designated by the Board of Directors and publicized among all directors, either orally or in writing, by telephone, including a voice-messaging system or other system designed to record and communicate messages, facsimile, telegraph or telex, or by electronic mail or other electronic means. No further notice shall be required for regular meetings of the Board of Directors.

(b) Special Meetings. Unless otherwise restricted by the Certificate of Incorporation, special meetings of the Board of Directors may be held at any time and place within or without the State of Delaware whenever called by the Chairman of the Board, the Chief Executive Officer or a majority of the authorized number of directors.

(c) Meetings by Electronic Communications Equipment. Any member of the Board of Directors, or of any committee thereof, may participate in a meeting by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other, and participation in a meeting by such means shall constitute presence in person at such meeting.

(d) Notice of Special Meetings. Notice of the time and place of all special meetings of the Board of Directors shall be orally or in writing, by telephone, including a voice messaging system or other system or technology designed to record and communicate messages, facsimile, telegraph or telex, or by electronic mail or other electronic means, during normal business hours, at least 24 hours before the date and time of the meeting. If notice is sent by U.S. mail, it shall be sent by first class mail, charges prepaid, at least three days before the date of the

meeting. Notice of any meeting may be waived in writing, or by electronic transmission, at any time before or after the meeting and will be waived by any director by attendance thereat, except when the director attends the meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened.

(e) Waiver of Notice. The transaction of all business at any meeting of the Board of Directors, or any committee thereof, however called or noticed, or wherever held, shall be as valid as though it had been transacted at a meeting duly held after regular call and notice, if a quorum be present and if, either before or after the meeting, each of the directors not present who did not receive notice shall sign a written waiver of notice or shall waive notice by electronic transmission. All such waivers shall be filed with the corporate records or made a part of the minutes of the meeting.

Section 22. Quorum and Voting.

(a) Unless the Certificate of Incorporation requires a greater number, and except with respect to questions related to indemnification arising under Section 45 of these Bylaws for which a quorum shall be one-third of the exact number of directors fixed from time to time, a quorum of the Board of Directors shall consist of a majority of the exact number of directors fixed from time to time by the Board of Directors in accordance with the Certificate of Incorporation; *provided, however,* at any meeting whether a quorum be present or otherwise, a majority of the directors present may adjourn from time to time until the time fixed for the next regular meeting of the Board of Directors, without notice other than by announcement at the meeting.

(b) At each meeting of the Board of Directors at which a quorum is present, all questions and business shall be determined by the affirmative vote of a majority of the directors present, unless a different vote be required by law, the Certificate of Incorporation or these Bylaws.

Section 23. Action Without Meeting. Unless otherwise restricted by the Certificate of Incorporation or these Bylaws, any action required or permitted to be taken at any meeting of the Board of Directors or of any committee thereof may be taken without a meeting, if all members of the Board of Directors or committee, as the case may be, consent thereto in writing or by electronic transmission, and such writing or writings or transmission or transmissions are filed with the minutes of proceedings of the Board of Directors or committee. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form.

Section 24. Fees and Compensation. Directors shall be entitled to such compensation for their services as may be approved by the Board of Directors, including, if so approved, by resolution of the Board of Directors, a fixed sum and expenses of attendance, if any, for attendance at each regular or special meeting of the Board of Directors and at any meeting of a committee of the Board of Directors. Nothing herein contained shall be construed to preclude any director from serving the corporation in any other capacity as an officer, agent, employee, or otherwise and receiving compensation therefor.

Section 25. Committees.

(a) Executive Committee. The Board of Directors may appoint an Executive Committee to consist of one or more members of the Board of Directors. The Executive Committee, to the extent permitted by law and provided in the resolution of the Board of Directors shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the corporation, and may authorize the seal of the corporation to be affixed to all papers which may require it; but no such committee shall have the power or authority in reference to (i) approving or adopting, or recommending to the stockholders, any action or matter (other than the election or removal of directors) expressly required by the DGCL to be submitted to stockholders for approval, or (ii) adopting, amending or repealing any Bylaw of the corporation.

(b) Other Committees. The Board of Directors may, from time to time, appoint such other committees as may be permitted by law. Such other committees appointed by the Board of Directors shall consist of one or more members of the Board of Directors and shall have such powers and perform such duties as may be prescribed by the resolution or resolutions creating such committees, but in no event shall any such committee have the powers denied to the Executive Committee in these Bylaws.

(c) Term. The Board of Directors, subject to any requirements of any outstanding series of Preferred Stock and the provisions of subsections (a) or (b) of this Section 25, may at any time increase or decrease the number of members of a committee or terminate the existence of a committee. The membership of a committee member shall terminate on the date of his death or voluntary resignation from the committee or from the Board of Directors. The Board of Directors may at any time for any reason remove any individual committee member and the Board of Directors may fill any committee vacancy created by death, resignation, removal or increase in the number of members of the committee. The Board of Directors may designate one or more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee, and, in addition, in the absence or disqualification of any member of a committee, the member or members thereof present at any meeting and not disqualified from voting, whether or not he or they constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of any such absent or disqualified member.

(d) Meetings. Unless the Board of Directors shall otherwise provide, regular meetings of the Executive Committee or any other committee appointed pursuant to this Section 25 shall be held at such times and places as are determined by the Board of Directors, or by any such committee, and when notice thereof has been given to each member of such committee, no further notice of such regular meetings need be given thereafter. Special meetings of any such committee may be held at any place which has been determined from time to time by such committee, and may be called by any director who is a member of such committee, upon notice to the members of such committee of the time and place of such special meeting given in the manner provided for the giving of notice to members of the Board of Directors of the time and place of special meetings of the Board of Directors. Notice of any special meeting of any committee may be waived in writing or by electronic transmission at any time before or after the meeting and will be waived by any director by attendance thereat, except when the director

attends such special meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Unless otherwise provided by the Board of Directors in the resolutions authorizing the creation of the committee, a majority of the authorized number of members of any such committee shall constitute a quorum for the transaction of business, and the act of a majority of those present at any meeting at which a quorum is present shall be the act of such committee.

Section 26. Duties of Chairman of the Board of Directors. The Chairman of the Board of Directors, when present, shall preside at all meetings of the stockholders and the Board of Directors. The Chairman of the Board of Directors shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers, as the Board of Directors shall designate from time to time.

Section 27. Lead Independent Director. The Chairman of the Board of Directors, or if the Chairman is not an independent director, one of the independent directors, may be designated by the Board of Directors as lead independent director ("***Lead Independent Director***") to serve until replaced by the Board of Directors. The Lead Independent Director will: with the Chairman of the Board of Directors, establish the agenda for regular Board meetings and serve as chairman of Board of Directors meetings in the absence of the Chairman of the Board of Directors; establish the agenda for meetings of the independent directors; coordinate with the committee chairs regarding meeting agendas and informational requirements; preside over meetings of the independent directors; preside over any portions of meetings of the Board of Directors at which the evaluation or compensation of the Chief Executive Officer is presented or discussed; preside over any portions of meetings of the Board of Directors at which the performance of the Board of Directors is presented or discussed; and perform such other duties as may be established or delegated by the Chairman of the Board of Directors.

Section 28. Organization. At every meeting of the directors, the Chairman of the Board of Directors, or, if a Chairman has not been appointed or is absent, the Lead Independent Director, or if the Lead Independent Director is absent, the Chief Executive Officer (if a director), or, if a Chief Executive Officer is absent, the President (if a director), or if the President is absent, the most senior Vice President (if a director), or, in the absence of any such person, a chairman of the meeting chosen by a majority of the directors present, shall preside over the meeting. The Secretary, or in his absence, any Assistant Secretary or other officer or director directed to do so by the Chairman, shall act as secretary of the meeting.

ARTICLE V

OFFICERS

Section 29. Officers Designated. The officers of the corporation shall include, if and when designated by the Board of Directors, the Chairman of the Board of Directors, the Chief Executive Officer, the President, one or more Vice Presidents, the Secretary, the Chief Financial Officer and the Treasurer. The Board of Directors may also appoint one or more Assistant Secretaries and Assistant Treasurers and such other officers and agents with such powers and duties as it shall deem necessary. The Board of Directors may assign such additional titles to one or more of the officers as it shall deem appropriate. Any one person may hold any number of offices of the corporation at any one time unless specifically prohibited therefrom by law. The salaries and other compensation of the officers of the corporation shall be fixed by or in the manner designated by the Board of Directors.

Section 30. Tenure and Duties of Officers.

(a) General. All officers shall hold office at the pleasure of the Board of Directors and until their successors shall have been duly elected and qualified, unless sooner removed. Any officer elected or appointed by the Board of Directors may be removed at any time by the Board of Directors. If the office of any officer becomes vacant for any reason, the vacancy may be filled by the Board of Directors.

(b) Duties of Chief Executive Officer. The Chief Executive Officer shall preside at all meetings of the stockholders and at all meetings of the Board of Directors, unless the Chairman of the Board of Directors or the Lead Independent Director has been appointed and is present. Unless an officer has been appointed Chief Executive Officer of the corporation, the President shall be the Chief Executive Officer of the corporation and shall, subject to the control of the Board of Directors, have general supervision, direction and control of the business and officers of the corporation. To the extent that a Chief Executive Officer has been appointed and no President has been appointed, all references in these Bylaws to the President shall be deemed references to the Chief Executive Officer. The Chief Executive Officer shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers, as the Board of Directors shall designate from time to time.

(c) Duties of President. The President shall preside at all meetings of the stockholders and at all meetings of the Board of Directors, unless the Chairman of the Board of Directors, the Lead Independent Director, or the Chief Executive Officer has been appointed and is present. Unless another officer has been appointed Chief Executive Officer of the corporation, the President shall be the Chief Executive Officer of the corporation and shall, subject to the control of the Board of Directors, have general supervision, direction and control of the business and officers of the corporation. The President shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers, as the Board of Directors shall designate from time to time.

(d) Duties of Vice Presidents. The Vice Presidents may assume and perform the duties of the President in the absence or disability of the President or whenever the office of President is vacant. The Vice Presidents shall perform other duties commonly incident to their office and shall also perform such other duties and have such other powers as the Board of Directors or the Chief Executive Officer, or, if the Chief Executive Officer has not been appointed or is absent, the President shall designate from time to time.

(e) Duties of Secretary. The Secretary shall attend all meetings of the stockholders and of the Board of Directors and shall record all acts and proceedings thereof in the minute book of the corporation. The Secretary shall give notice in conformity with these Bylaws of all meetings of the stockholders and of all meetings of the Board of Directors and any committee thereof requiring notice. The Secretary shall perform all other duties provided for in these Bylaws and other duties commonly incident to the office and shall also perform such other

duties and have such other powers, as the Board of Directors shall designate from time to time. The President may direct any Assistant Secretary or other officer to assume and perform the duties of the Secretary in the absence or disability of the Secretary, and each Assistant Secretary shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time.

(f) Duties of Chief Financial Officer. The Chief Financial Officer shall keep or cause to be kept the books of account of the corporation in a thorough and proper manner and shall render statements of the financial affairs of the corporation in such form and as often as required by the Board of Directors or the President. The Chief Financial Officer, subject to the order of the Board of Directors, shall have the custody of all funds and securities of the corporation. The Chief Financial Officer shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time. To the extent that a Chief Financial Officer has been appointed and no Treasurer has been appointed, all references in these Bylaws to the Treasurer shall be deemed references to the Chief Financial Officer. The President may direct the Treasurer, if any, or any Assistant Treasurer, or the Controller or any Assistant Controller to assume and perform the duties of the Chief Financial Officer in the absence or disability of the Chief Financial Officer, and each Treasurer and Assistant Treasurer and each Controller and Assistant Controller shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time.

(g) Duties of Treasurer. Unless another officer has been appointed Chief Financial Officer of the corporation, the Treasurer shall be the chief financial officer of the corporation and shall keep or cause to be kept the books of account of the corporation in a thorough and proper manner and shall render statements of the financial affairs of the corporation in such form and as often as required by the Board of Directors or the President, and, subject to the order of the Board of Directors, shall have the custody of all funds and securities of the corporation. The Treasurer shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the President shall designate from time to time.

Section 31. Delegation of Authority. The Board of Directors may from time to time delegate the powers or duties of any officer to any other officer or agent, notwithstanding any provision hereof.

Section 32. Resignations. Any officer may resign at any time by giving notice in writing or by electronic transmission to the Board of Directors or to the President or to the Secretary. Any such resignation shall be effective when received by the person or persons to whom such notice is given, unless a later time is specified therein, in which event the resignation shall become effective at such later time. Unless otherwise specified in such notice, the acceptance of any such resignation shall not be necessary to make it effective. Any resignation shall be without prejudice to the rights, if any, of the corporation under any contract with the resigning officer.

Section 33. Removal. Any officer may be removed from office at any time, either with or without cause, by the affirmative vote of a majority of the directors in office at the time, or by the unanimous written consent of the directors in office at the time, or by any committee or by the Chief Executive Officer or by other superior officers upon whom such power of removal may have been conferred by the Board of Directors.

ARTICLE VI

EXECUTION OF CORPORATE INSTRUMENTS AND VOTING OF SECURITIES OWNED BY THE CORPORATION

Section 34. Execution of Corporate Instruments. The Board of Directors may, in its discretion, determine the method and designate the signatory officer or officers, or other person or persons, to execute on behalf of the corporation any corporate instrument or document, or to sign on behalf of the corporation the corporate name without limitation, or to enter into contracts on behalf of the corporation, except where otherwise provided by law or these Bylaws, and such execution or signature shall be binding upon the corporation.

All checks and drafts drawn on banks or other depositaries on funds to the credit of the corporation or in special accounts of the corporation shall be signed by such person or persons as the Board of Directors shall authorize so to do.

Unless authorized or ratified by the Board of Directors or within the agency power of an officer, no officer, agent or employee shall have any power or authority to bind the corporation by any contract or engagement or to pledge its credit or to render it liable for any purpose or for any amount.

Section 35. Voting of Securities Owned by the Corporation. All stock and other securities of other corporations owned or held by the corporation for itself, or for other parties in any capacity, shall be voted, and all proxies with respect thereto shall be executed, by the person authorized so to do by resolution of the Board of Directors, or, in the absence of such authorization, by the Chairman of the Board of Directors, the Chief Executive Officer, the President, or any Vice President.

ARTICLE VII

SHARES OF STOCK

Section 36. Form and Execution of Certificates. The shares of the corporation shall be represented by certificates, or shall be uncertificated if so provided by resolution or resolutions of the Board of Directors. Certificates for the shares of stock of the corporation, if any, shall be in such form as is consistent with the Certificate of Incorporation and applicable law. Every holder of stock represented by certificate in the corporation shall be entitled to have a certificate signed by or in the name of the corporation by the Chairman of the Board of Directors, the Chief Executive Officer, or the President or any Vice President and by the Chief Financial Officer, Treasurer or Assistant Treasurer or the Secretary or Assistant Secretary, certifying the number of shares owned by him in the corporation. Any or all of the signatures on the certificate

may be facsimiles. In case any officer, transfer agent, or registrar who has signed or whose facsimile signature has been placed upon a certificate shall have ceased to be such officer, transfer agent, or registrar before such certificate is issued, it may be issued with the same effect as if he were such officer, transfer agent, or registrar at the date of issue.

Section 37. Lost Certificates. A new certificate or certificates shall be issued in place of any certificate or certificates theretofore issued by the corporation alleged to have been lost, stolen, or destroyed, upon the making of an affidavit of that fact by the person claiming the certificate of stock to be lost, stolen, or destroyed. The corporation may require, as a condition precedent to the issuance of a new certificate or certificates, the owner of such lost, stolen, or destroyed certificate or certificates, or the owner's legal representative, to agree to indemnify the corporation in such manner as it shall require or to give the corporation a surety bond in such form and amount as it may direct as indemnity against any claim that may be made against the corporation with respect to the certificate alleged to have been lost, stolen, or destroyed.

Section 38. Transfers.

(a) Transfers of record of shares of stock of the corporation shall be made only upon its books by the holders thereof, in person or by attorney duly authorized, and, in the case of stock represented by certificate, upon the surrender of a properly endorsed certificate or certificates for a like number of shares.

(b) The corporation shall have power to enter into and perform any agreement with any number of stockholders of any one or more classes of stock of the corporation to restrict the transfer of shares of stock of the corporation of any one or more classes owned by such stockholders in any manner not prohibited by the DGCL.

Section 39. Fixing Record Dates.

(a) In order that the corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall, subject to applicable law, not be more than 60 nor less than 10 days before the date of such meeting. If no record date is fixed by the Board of Directors, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given, or if notice is waived, at the close of business on the day next preceding the day on which the meeting is held. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; *provided, however,* that the Board of Directors may fix a new record date for the adjourned meeting.

(b) In order that the corporation may determine the stockholders entitled to receive payment of any dividend or other distribution or allotment of any rights or the stockholders entitled to exercise any rights in respect of any change, conversion or exchange of stock, or for the purpose of any other lawful action, the Board of Directors may fix, in advance, a record date, which record date shall not precede the date upon which the resolution fixing the

record date is adopted, and which record date shall be not more than 60 days prior to such action. If no record date is fixed, the record date for determining stockholders for any such purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto.

Section 40. Registered Stockholders. The corporation shall be entitled to recognize the exclusive right of a person registered on its books as the owner of shares to receive dividends, and to vote as such owner, and shall not be bound to recognize any equitable or other claim to or interest in such share or shares on the part of any other person whether or not it shall have express or other notice thereof, except as otherwise provided by the laws of Delaware.

ARTICLE VIII

OTHER SECURITIES OF THE CORPORATION

Section 41. Execution of Other Securities. All bonds, debentures and other corporate securities of the corporation, other than stock certificates (covered in Section 36 of these Bylaws), may be signed by the Chairman of the Board of Directors, the Chief Executive Officer, the President or any Vice President, or such other person as may be authorized by the Board of Directors, and the corporate seal impressed thereon or a facsimile of such seal imprinted thereon and attested by the signature of the Secretary or an Assistant Secretary, or the Chief Financial Officer or Treasurer or an Assistant Treasurer; *provided, however,* that where any such bond, debenture or other corporate security shall be authenticated by the manual signature, or where permissible facsimile signature, of a trustee under an indenture pursuant to which such bond, debenture or other corporate security shall be issued, the signatures of the persons signing and attesting the corporate seal on such bond, debenture or other corporate security may be the imprinted facsimile of the signatures of such persons. Interest coupons appertaining to any such bond, debenture or other corporate security, authenticated by a trustee as aforesaid, shall be signed by the Treasurer or an Assistant Treasurer of the corporation or such other person as may be authorized by the Board of Directors, or bear imprinted thereon the facsimile signature of such person. In case any officer who shall have signed or attested any bond, debenture or other corporate security, or whose facsimile signature shall appear thereon or on any such interest coupon, shall have ceased to be such officer before the bond, debenture or other corporate security so signed or attested shall have been delivered, such bond, debenture or other corporate security nevertheless may be adopted by the corporation and issued and delivered as though the person who signed the same or whose facsimile signature shall have been used thereon had not ceased to be such officer of the corporation.

ARTICLE IX

DIVIDENDS

Section 42. Declaration of Dividends. Dividends upon the capital stock of the corporation, subject to the provisions of the Certificate of Incorporation and applicable law, if any, may be declared by the Board of Directors pursuant to law at any regular or special meeting. Dividends may be paid in cash, in property, or in shares of the capital stock, subject to the provisions of the Certificate of Incorporation and applicable law.

Section 43. Dividend Reserve. Before payment of any dividend, there may be set aside out of any funds of the corporation available for dividends such sum or sums as the Board of Directors from time to time, in their absolute discretion, think proper as a reserve or reserves to meet contingencies, or for equalizing dividends, or for repairing or maintaining any property of the corporation, or for such other purpose as the Board of Directors shall think conducive to the interests of the corporation, and the Board of Directors may modify or abolish any such reserve in the manner in which it was created.

ARTICLE X

FISCAL YEAR

Section 44. Fiscal Year. The fiscal year of the corporation shall be fixed by resolution of the Board of Directors.

ARTICLE XI

INDEMNIFICATION

Section 45. Indemnification of Directors, Officers, Employees and Other Agents.

(a) Directors and Officers. The corporation shall indemnify its directors and officers to the extent not prohibited by the DGCL or any other applicable law; *provided, however,* that the corporation may modify the extent of such indemnification by individual contracts with its directors and officers; and, *provided, further,* that the corporation shall not be required to indemnify any director or officer in connection with any proceeding (or part thereof) initiated by such person unless (i) such indemnification is expressly required to be made by law, (ii) the proceeding was authorized by the Board of Directors of the corporation, (iii) such indemnification is provided by the corporation, in its sole discretion, pursuant to the powers vested in the corporation under the DGCL or any other applicable law or (iv) such indemnification is required to be made under subsection (d).

(b) Employees and Other Agents. The corporation shall have power to indemnify its employees and other agents as set forth in the DGCL or any other applicable law. The Board of Directors shall have the power to delegate the determination of whether indemnification shall be given to any such person (except for officers) or other persons as the Board of Directors shall determine.

(c) Expenses. The corporation shall advance to any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he is or was a director or officer, of the corporation, or is or was serving at the request of the corporation as a director or officer of another corporation, partnership, joint venture, trust or other enterprise, prior to the final disposition of the proceeding, promptly following request therefor, all expenses incurred by any director or officer in connection with such proceeding provided, however, that if the DGCL requires, an advancement of expenses incurred by a director or officer in his or her capacity as a director or officer (and not in any other capacity in

which service was or is rendered by such indemnitee, including, without limitation, service to an employee benefit plan) shall be made only upon delivery to the corporation of an undertaking (hereinafter an "***undertaking***"), by or on behalf of such indemnitee, to repay all amounts so advanced if it shall ultimately be determined by final judicial decision from which there is no further right to appeal (hereinafter a "***final adjudication***") that such indemnitee is not entitled to be indemnified for such expenses under this Section 45 or otherwise.

Notwithstanding the foregoing, unless otherwise determined pursuant to paragraph (e) of this Section 45, no advance shall be made by the corporation to an officer of the corporation (except by reason of the fact that such officer is or was a director of the corporation in which event this paragraph shall not apply) in any action, suit or proceeding, whether civil, criminal, administrative or investigative, if a determination is reasonably and promptly made (i) by a majority vote of directors who were not parties to the proceeding, even if not a quorum, or (ii) by a committee of such directors designated by a majority vote of such directors, even though less than a quorum, or (iii) if there are no such directors, or such directors so direct, by independent legal counsel in a written opinion, that the facts known to the decision-making party at the time such determination is made demonstrate clearly and convincingly that such person acted in bad faith or in a manner that such person did not believe to be in or not opposed to the best interests of the corporation.

(d) Enforcement. Without the necessity of entering into an express contract, all rights to indemnification and advances to directors and officers under this Section 45 shall be deemed to be contractual rights and be effective to the same extent and as if provided for in a contract between the corporation and the director or officer. Any right to indemnification or advances granted by this Section 45 to a director or officer shall be enforceable by or on behalf of the person holding such right in any court of competent jurisdiction if (i) the claim for indemnification or advances is denied, in whole or in part, or (ii) no disposition of such claim is made within 90 days of request therefor. To the extent permitted by law, the claimant in such enforcement action, if successful in whole or in part, shall be entitled to be paid also the expense of prosecuting the claim. In connection with any claim for indemnification, the corporation shall be entitled to raise as a defense to any such action that the claimant has not met the standards of conduct that make it permissible under the DGCL or any other applicable law for the corporation to indemnify the claimant for the amount claimed. In connection with any claim by an officer of the corporation (except in any action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that such officer is or was a director of the corporation) for advances, the corporation shall be entitled to raise a defense as to any such action clear and convincing evidence that such person acted in bad faith or in a manner that such person did not believe to be in or not opposed to the best interests of the corporation, or with respect to any criminal action or proceeding that such person acted without reasonable cause to believe that his conduct was lawful. Neither the failure of the corporation (including its Board of Directors, independent legal counsel or its stockholders) to have made a determination prior to the commencement of such action that indemnification of the claimant is proper in the circumstances because the director or officer has met the applicable standard of conduct set forth in the DGCL or any other applicable law, nor an actual determination by the corporation (including its Board of Directors, independent legal counsel or its stockholders) that the claimant has not met such applicable standard of conduct, shall be a defense to the action or create a presumption that claimant has not met the applicable standard of conduct. In any suit brought by a director or officer to enforce a right to indemnification or to an advancement of expenses hereunder, the burden of proving that the director or officer is not entitled to be indemnified, or to such advancement of expenses, under this Section 45 or otherwise shall be on the corporation.

(e) Non-Exclusivity of Rights. The rights conferred on any person by this Bylaw shall not be exclusive of any other right which such person may have or hereafter acquire under any applicable statute, provision of the Certificate of Incorporation, Bylaws, agreement, vote of stockholders or disinterested directors or otherwise, both as to action in such person's official capacity and as to action in another capacity while holding office. The corporation is specifically authorized to enter into individual contracts with any or all of its directors, officers, employees or agents respecting indemnification and advances, to the fullest extent not prohibited by the DGCL, or by any other applicable law.

(f) Survival of Rights. The rights conferred on any person by this Bylaw shall continue as to a person who has ceased to be a director or officer, or, if applicable, employee or other agent, and shall inure to the benefit of the heirs, executors and administrators of such a person.

(g) Insurance. To the fullest extent permitted by the DGCL or any other applicable law, the corporation, upon approval by the Board of Directors, may purchase insurance on behalf of any person required or permitted to be indemnified pursuant to this Section 45.

(h) Amendments. Any repeal or modification of this Section 45 shall only be prospective and shall not affect the rights under this Bylaw in effect at the time of the alleged occurrence of any action or omission to act that is the cause of any proceeding against any agent of the corporation.

(i) Saving Clause. If this Bylaw or any portion hereof shall be invalidated on any ground by any court of competent jurisdiction, then the corporation shall nevertheless indemnify each director and officer to the full extent not prohibited by any applicable portion of this Section 45 that shall not have been invalidated, or by any other applicable law. If this Section 45 shall be invalid due to the application of the indemnification provisions of another jurisdiction, then the corporation shall indemnify each director and officer to the full extent under any other applicable law.

(j) Certain Definitions. For the purposes of this Bylaw, the following definitions shall apply:

(i) The term "***proceeding***" shall be broadly construed and shall include, without limitation, the investigation, preparation, prosecution, defense, settlement, arbitration and appeal of, and the giving of testimony in, any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative.

(ii) The term "***expenses***" shall be broadly construed and shall include, without limitation, court costs, attorneys' fees, witness fees, fines, amounts paid in settlement or judgment and any other costs and expenses of any nature or kind incurred in connection with any proceeding.

(iii) The term the "***corporation***" shall include, in addition to the resulting corporation, any constituent corporation (including any constituent of a constituent) absorbed in a consolidation or merger which, if its separate existence had continued, would have had power and authority to indemnify its directors, officers, and employees or agents, so that any person who is or was a director, officer, employee or agent of such constituent corporation, or is or was serving at the request of such constituent corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, shall stand in the same position under the provisions of this Section 45 with respect to the resulting or surviving corporation as he would have with respect to such constituent corporation if its separate existence had continued.

(iv) References to a "***director***," "***officer***," "***employee***," or "***agent***" of the corporation shall include, without limitation, situations where such person is serving at the request of the corporation as, respectively, a director, officer, employee, trustee or agent of another corporation, partnership, joint venture, trust or other enterprise.

(v) References to "***other enterprises***" shall include employee benefit plans; references to "fines" shall include any excise taxes assessed on a person with respect to an employee benefit plan; and references to "***serving at the request of the corporation***" shall include any service as a director, officer, employee or agent of the corporation which imposes duties on, or involves services by, such director, officer, employee, or agent with respect to an employee benefit plan, its participants, or beneficiaries; and a person who acted in good faith and in a manner such person reasonably believed to be in the interest of the participants and beneficiaries of an employee benefit plan shall be deemed to have acted in a manner "***not opposed to the best interests of the corporation***" as referred to in this Section 45.

ARTICLE XII

NOTICES

Section 46. Notices.

(a) Notice to Stockholders. Written notice to stockholders of stockholder meetings shall be given as provided in Section 7 of these Bylaws. Without limiting the manner by which notice may otherwise be given effectively to stockholders under any agreement or contract with such stockholder, and except as otherwise required by law, written notice to stockholders for purposes other than stockholder meetings may be sent by U.S. mail or nationally recognized overnight courier, or by facsimile, telegraph or telex or by electronic mail or other electronic means.

(b) Notice to Directors. Any notice required to be given to any director may be given by the method stated in subsection (a), as otherwise provided in these Bylaws, or by overnight delivery service, facsimile, telex or telegram, except that such notice other than one which is delivered personally shall be sent to such address as such director shall have filed in writing with the Secretary, or, in the absence of such filing, to the last known post office address of such director.

(c) Affidavit of Mailing. An affidavit of mailing, executed by a duly authorized and competent employee of the corporation or its transfer agent appointed with respect to the class of stock affected, or other agent, specifying the name and address or the names and addresses of the stockholder or stockholders, or director or directors, to whom any such notice or notices was or were given, and the time and method of giving the same, shall in the absence of fraud, be prima facie evidence of the facts therein contained.

(d) Methods of Notice. It shall not be necessary that the same method of giving notice be employed in respect of all recipients of notice, but one permissible method may be employed in respect of any one or more, and any other permissible method or methods may be employed in respect of any other or others.

(e) Notice to Person With Whom Communication is Unlawful. Whenever notice is required to be given, under any provision of law or of the Certificate of Incorporation or Bylaws of the corporation, to any person with whom communication is unlawful, the giving of such notice to such person shall not be required and there shall be no duty to apply to any governmental authority or agency for a license or permit to give such notice to such person. Any action or meeting which shall be taken or held without notice to any such person with whom communication is unlawful shall have the same force and effect as if such notice had been duly given. In the event that the action taken by the corporation is such as to require the filing of a certificate under any provision of the DGCL, the certificate shall state, if such is the fact and if notice is required, that notice was given to all persons entitled to receive notice except such persons with whom communication is unlawful.

(f) Notice to Stockholders Sharing an Address. Except as otherwise prohibited under the DGCL, any notice given under the provisions of the DGCL, the Certificate of Incorporation or the Bylaws shall be effective if given by a single written notice to stockholders who share an address if consented to by the stockholders at that address to whom such notice is given. Such consent shall have been deemed to have been given if such stockholder fails to object in writing to the corporation within 60 days of having been given notice by the corporation of its intention to send the single notice. Any consent shall be revocable by the stockholder by written notice to the corporation.

ARTICLE XIII

AMENDMENTS

Section 47. Amendments. Subject to the limitations set forth in Section 45(h) of these Bylaws or the provisions of the Certificate of Incorporation, the Board of Directors is expressly empowered to adopt, amend or repeal the Bylaws of the corporation. Any adoption, amendment or repeal of the Bylaws of the corporation by the Board of Directors shall require the approval of a majority of the authorized number of directors. The stockholders also shall have power to adopt, amend or repeal the Bylaws of the corporation; *provided, however,* that, in addition to any vote of the holders of any class or series of stock of the corporation required by law or by the Certificate of Incorporation, such action by stockholders shall require the affirmative vote of the holders of at least 66 2/3% of the voting power of all of the then-outstanding shares of the capital stock of the corporation entitled to vote generally in the election of directors, voting together as a single class.

ARTICLE XIV

LOANS TO OFFICERS OR EMPLOYEES

Section 48. Loans to Officers or Employees. Except as otherwise prohibited by applicable law, the corporation may lend money to, or guarantee any obligation of, or otherwise assist any officer or other employee of the corporation or of its subsidiaries, including any officer or employee who is a director of the corporation or its subsidiaries, whenever, in the judgment of the Board of Directors, such loan, guarantee or assistance may reasonably be expected to benefit the corporation. The loan, guarantee or other assistance may be with or without interest and may be unsecured, or secured in such manner as the Board of Directors shall approve, including, without limitation, a pledge of shares of stock of the corporation. Nothing in these Bylaws shall be deemed to deny, limit or restrict the powers of guaranty or warranty of the corporation at common law or under any statute.

Exhibit 4.2

EXECUTION VERSION

POSEIDA THERAPEUTICS, INC.

AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT

This AMENDED AND RESTATED INVESTORS' RIGHTS AGREEMENT (this "***Agreement***"), is made and entered into as of this 24th day of June, 2020, by and among **POSEIDA THERAPEUTICS, INC.**, a Delaware corporation (the "***Company***"), each of the persons and entities listed on Schedule A hereto (each, an "***Investor***" and collectively, the "***Investors***"), and each of the persons and entities listed on Schedule B hereto (each, a "***Key Holder***" and collectively the "***Key Holders***").

RECITALS

WHEREAS, concurrently with the execution of this Agreement, certain of the Investors are purchasing shares of the Company's Series D Preferred Stock, $0.0001 par value per share (the "***Series D Preferred***"), pursuant to that certain Series D Preferred Stock Purchase Agreement (as may be amended from time to time, the "***Purchase Agreement***") of even date herewith (capitalized terms used and not otherwise defined herein shall have the respective meanings ascribed thereto in the Purchase Agreement);

WHEREAS, the obligations in the Purchase Agreement are conditioned upon the execution and delivery of this Agreement;

WHEREAS, certain of the Investors (the "***Prior Investors***") are holders of the Company's Series A Preferred Stock, $0.0001 par value per share (the "***Series A Preferred***"), Series A-1 Preferred Stock, $0.0001 par value per share (the "***Series A-1 Preferred***"), Series B Preferred Stock, $0.0001 par value per share (the "***Series B Preferred***"), and Series C Preferred Stock, $0.0001 par value per share (the "***Series C Preferred***" and together with the Series A Preferred, the Series A-1 Preferred, the Series B Preferred and the Series D Preferred, the "***Preferred Stock***");

WHEREAS, the Key Holders and the Prior Investors are parties to that certain Amended and Restated Investors' Rights Agreement dated as of March 19, 2019, by and among the Company, the Key Holders and the Prior Investors (the "***Prior Agreement***");

WHEREAS, the parties to such Prior Agreement desire to amend and restate the Prior Agreement and to accept the rights and covenants hereof in lieu of their rights and covenants under the Prior Agreement; and

WHEREAS, in order to induce the Company to enter into the Purchase Agreement and to induce certain of the Investors to invest funds in the Company pursuant to the Purchase Agreement, the Investors and the Company hereby agree that this Agreement shall govern the rights of the Investors to cause the Company to register shares of Common Stock issuable to the Investors, to receive certain information from the Company, and to participate in future equity offerings by the Company, and shall govern certain other matters as set forth in this Agreement.

NOW, THEREFORE, in consideration of the foregoing premises and for certain other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

1. Definitions. For purposes of this Agreement:

1.1 "***Affiliate***" means, with respect to any specified Person, any other Person who, directly or indirectly, controls, is controlled by, or is under common control with such Person, including, without limitation, any general partner, managing member, member, officer or director of such Person or any venture capital fund or other investment fund now or hereafter existing that is controlled by one or more general partners or managing members of, or shares the same management company or investment adviser with, such Person.

1.2 "***Board of Directors***" means the Company's Board of Directors, as constituted from time to time.

1.3 "***Common Stock***" means shares of the Company's common stock, par value $0.0001 per share.

1.4 "***Damages***" means any loss, damage, claim or liability (joint or several) to which a party hereto may become subject under the Securities Act, the Exchange Act, or other federal or state law, insofar as such loss, damage, claim or liability (or any action in respect thereof) arises out of or is based upon: (i) any untrue statement or alleged untrue statement of a material fact contained in any registration statement of the Company, including any preliminary prospectus or final prospectus contained therein or any amendments or supplements thereto; (ii) an omission or alleged omission to state therein a material fact required to be stated therein, or necessary to make the statements therein not misleading; or (iii) any violation or alleged violation by the indemnifying party (or any of its agents or Affiliates) of the Securities Act, the Exchange Act, any state securities law, or any rule or regulation promulgated under the Securities Act, the Exchange Act, or any state securities law.

1.5 "***Derivative Securities***" means any securities or rights convertible into, or exercisable or exchangeable for (in each case, directly or indirectly), Common Stock, including options and warrants.

1.6 "***Exchange Act***" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

1.7 "***Excluded Registration***" means (i) a registration relating to the sale of securities to employees, directors or other service providers of the Company or a subsidiary pursuant to a stock option, stock purchase, or similar plan; (ii) a registration relating to an SEC Rule 145 transaction; (iii) a registration on any form that does not include substantially the same information as would be required to be included in a registration statement covering the sale of the Registrable Securities; or (iv) a registration in which the only Common Stock being registered is Common Stock issuable upon conversion of debt securities that are also being registered.

1.8 "***Fidelity***" means Fidelity Management & Research Company and any successor or affiliated registered investment advisor.

1.9 "***Fidelity Investors***" means any Investors advised or subadvised by Fidelity.

1.10 "***FOIA Party***" means a Person that, in the reasonable determination of the Board of Directors, may be subject to, and thereby required to disclose non-public information furnished by or relating to the Company under, the Freedom of Information Act, 5 U.S.C. §552 ("***FOIA***"), any state public records access law, any state or other jurisdiction's laws similar in intent or effect to FOIA, or any other similar statutory or regulatory requirement.

1.11 "***Form S-1***" means such form under the Securities Act as in effect on the date hereof or any successor registration form under the Securities Act subsequently adopted by the SEC.

1.12 "***Form S-3***" means such form under the Securities Act as in effect on the date hereof or any registration form under the Securities Act subsequently adopted by the SEC that permits incorporation of substantial information by reference to other documents filed by the Company with the SEC.

1.13 "***GAAP***" means generally accepted accounting principles in the United States.

1.14 "***Holder***" means any holder of Registrable Securities who is a party to this Agreement.

1.15 "***Immediate Family Member***" means a child, stepchild, grandchild, parent, stepparent, grandparent, spouse, sibling, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, including, adoptive relationships, or any life partner or other member of the same household covered under the applicable domestic relations statute, of a natural person referred to herein.

1.16 "***Initiating Holders***" means, collectively, Holders who properly initiate a registration request under this Agreement.

1.17 "***IPO***" means the Company's first underwritten public offering of its Common Stock under the Securities Act.

1.18 "***Key Employee***" means any executive-level employee (including, division director and vice president-level positions) as well as any employee who, either alone or in concert with others, develops, invents, programs, or designs any Company Owned Intellectual Property or Company Licensed Intellectual Property (as each such term is defined in the Purchase Agreement).

1.19 "***Key Holder Registrable Securities***" means (i) 12,590,101 shares of Common Stock held by the Key Holders, and (ii) any Common Stock issued as (or issuable upon the conversion or exercise of any warrant, right, or other security that is issued as) a dividend or other distribution with respect to, or in exchange for or in replacement of such shares.

1.20 "***Major Investor***" means any Investor that, individually or together with such Investor's Affiliates, holds at least 1,500,000 shares of Registrable Securities (as adjusted for any stock split, stock dividend, combination, or other recapitalization or reclassification effected after the date hereof); provided, that, notwithstanding the foregoing, Twin Prime Investments LLC shall be a Major Investor.

1.21 "***New Securities***" means, collectively, equity securities of the Company, whether or not currently authorized, as well as rights, options or warrants to purchase such equity securities, or securities of any type whatsoever that are, or may become, convertible or exchangeable into or exercisable for such securities.

1.22 "***Person***" means any individual, corporation, partnership, trust, limited liability company, association or other entity.

1.23 "***Qualified IPO***" shall have the meaning ascribed to it in the Restated Certificate.

1.24 "***Registrable Securities***" means (i) the Common Stock issuable or issued upon conversion of the Preferred Stock; (ii) any Common Stock, or any Common Stock issued or issuable (directly or indirectly) upon conversion and/or exercise of any other securities of the Company, acquired by the Investors after the date hereof and prior to a Qualified IPO; (iii) any Common Stock owned by the Investors as of the date hereof; (iv) the Key Holder Registrable Securities, provided, however, that such Key Holder Registrable Securities shall not be deemed Registrable Securities and the Key Holders shall not be deemed Holders for the purposes of Subsections 2.1, 2.10, 3.1, 3.2, 4.1 and 6.6; and (iv) any Common Stock issued as (or issuable upon the conversion or exercise of any warrant, right, or other security that is issued as) a dividend or other distribution with respect to, or in exchange for or in replacement of, the shares referenced in clauses (i) and (ii) above; excluding, in all cases, however, any Registrable Securities sold by a Person in a transaction in which the applicable rights under this Agreement are not assigned pursuant to Subsection 6.1, and excluding for purposes of Section 2 any shares for which registration rights have terminated pursuant to Subsection 2.13 of this Agreement.

1.25 "***Registrable Securities then outstanding***" means the number of shares determined by adding the number of shares of outstanding Common Stock that are Registrable Securities and the number of shares of Common Stock issuable (directly or indirectly) pursuant to then exercisable and/or convertible securities that are Registrable Securities.

1.26 "***Restated Certificate***" means the Company's Amended and Restated Certificate of Incorporation, as may be further amended and/or restated from time to time.

1.27 "***Restricted Securities***" means the securities of the Company required to be notated with the legend set forth in Subsection 2.12(b).

1.28 "***SEC***" means the U.S. Securities and Exchange Commission.

1.29 "***SEC Rule 144***" means Rule 144 promulgated by the SEC under the Securities Act.

1.30 "***SEC Rule 145***" means Rule 145 promulgated by the SEC under the Securities Act.

1.31 "***Securities Act***" means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

1.32 "***Selling Expenses***" means all underwriting discounts, selling commissions, and stock transfer taxes applicable to the sale of Registrable Securities, and fees and disbursements of counsel for any Holder, except for the fees and disbursements of the Selling Holder Counsel borne and paid by the Company as provided in Subsection 2.6.

1.33 "***Series Preferred Director***" means any director of the Company that the holders of record of the Preferred Stock are entitled to elect pursuant to the Restated Certificate.

2. Registration Rights. The Company covenants and agrees as follows:

2.1 Demand Registration.

(a) Form S-1 Demand. If at any time after the earlier of (i) three (3) years after the date of this Agreement or (ii) one hundred eighty (180) days after the effective date of the registration statement for the Qualified IPO, the Company receives a request from Holders of a majority of the Registrable Securities then outstanding that the Company file a Form S-1 registration statement with respect to Registrable Securities of such Holders having an anticipated aggregate offering price, net of Selling Expenses, of at least $10,000,000, then the Company shall (x) within ten (10) days after the date such request is given, give notice thereof (the "***Demand Notice***") to all Holders other than the Initiating Holders; and (y) use its commercially reasonable efforts to file within sixty (60) days after the date such request is given by the Initiating Holders a Form S-1 registration statement under the Securities Act covering all Registrable Securities that the Initiating Holders requested to be registered and any additional Registrable Securities requested to be included in such registration by any other Holders, as specified by notice given by each such Holder to the Company within thirty (30) days of the date the Demand Notice is given, and, in each case, subject to the limitations of Subsections 2.1(c) and 2.3.

(b) Form S-3 Demand. If at any time when it is eligible to use a Form S-3 registration statement, the Company receives a request from Holders of at least twenty-five percent (25%) of the Registrable Securities then outstanding that the Company file a Form S-3 registration statement with respect to outstanding Registrable Securities of such Holders having an anticipated aggregate offering price, net of Selling Expenses, of at least $2,000,000, then the Company shall (i) within ten (10) days after the date such request is given, give a Demand Notice to all Holders other than the Initiating Holders; and (ii) as soon as practicable, and in any event within forty-five (45) days after the date such request is given by the Initiating Holders, file a Form S-3 registration statement under the Securities Act covering all Registrable Securities requested to be included in such registration by any other Holders, as specified by notice given by each such Holder to the Company within thirty (30) days of the date the Demand Notice is given, and in each case, subject to the limitations of Subsections 2.1(c) and 2.3.

(c) Notwithstanding the foregoing obligations, if the Company furnishes to Holders requesting a registration pursuant to this Subsection 2.1 a certificate signed by the Company's chief executive officer stating that in the good faith judgment of the Board of

Directors, it would be materially detrimental to the Company and its stockholders for such registration statement to either be filed or become effective or remain effective for as long as such registration statement otherwise would be required to remain effective, because such action would (i) materially interfere with a significant acquisition, corporate reorganization, or other similar transaction involving the Company; (ii) require premature disclosure of material information that the Company has a bona fide business purpose for preserving as confidential; or (iii) render the Company unable to comply with requirements under the Securities Act or Exchange Act, then the Company shall have the right to defer taking action with respect to such filing, and any time periods with respect to filing or effectiveness thereof shall be tolled correspondingly, for a period of not more than one hundred twenty (120) days after the request of the Initiating Holders is given; provided, however, that the Company may not invoke this right more than once in any twelve (12)-month period; and provided, further, that the Company shall not register any securities for its own account or that of any other stockholder during such one hundred twenty (120)-day period other than (x) a registration relating to the sale of securities to employees of the Company or a subsidiary pursuant to a stock option, stock purchase, or similar plan; (y) a registration on any form that does not include substantially the same information as would be required to be included in a registration statement covering the sale of the Registrable Securities; or (z) a registration in which the only Common Stock being registered is Common Stock issuable upon conversion of debt securities that are also being registered.

(d) The Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to Subsection 2.1(a) (i) during the period beginning with the submission or filing of, and ending on a date that is one hundred eighty (180) days after the effective date of, a registration statement under the Securities Act pertaining to the Qualified IPO, provided that the Company is actively employing in good faith commercially reasonable efforts to cause such registration statement to become effective; (ii) after the Company has effected two (2) registrations pursuant to Subsection 2.1(a); (iii) if the Initiating Holders propose to dispose of shares of Registrable Securities that may be immediately registered on Form S-3 pursuant to a request made pursuant to Subsection 2.1(b); or (iv) if within thirty (30) days of receipt of the request from the Initiating Holders, the Company gives notice to the Holders of Registrable Securities of the Company's intention to submit or file a registration statement for a public offering within one hundred twenty (120) days. The Company shall not be obligated to effect, or to take any action to effect, any registration pursuant to Subsection 2.1(b) (i) during the period that is thirty (30) days before the Company's good faith estimate of the date of submission or filing of, and ending on a date that is ninety (90) days after the effective date of, a Company-initiated registration, provided that the Company is actively employing in good faith commercially reasonable efforts to cause such registration statement to become effective; or (ii) if the Company has effected two (2) registrations pursuant to Subsection 2.1(b) within the twelve (12)-month period immediately preceding the date of such request. A registration shall not be counted as "effected" for purposes of this Subsection 2.1(d) until such time as the applicable registration statement has been declared effective by the SEC, unless the Initiating Holders withdraw their request for such registration, elect not to pay the registration expenses therefor, and forfeit their right to one (1) demand registration statement pursuant to Subsection 2.6, in which case such withdrawn registration statement shall be counted as "effected" for purposes of this Subsection 2.1(d).

2.2 Company Registration. If the Company proposes to register (including, for this purpose, a registration effected by the Company for stockholders other than the Holders) any of its securities under the Securities Act in connection with the public offering of such securities solely for cash (other than in an Excluded Registration), the Company shall, at such time, promptly give each Holder notice of such registration. Upon the request of each Holder given within twenty (20) days after such notice is given by the Company, the Company shall, subject to the provisions of Subsection 2.3, cause to be registered all of the Registrable Securities that each such Holder has requested to be included in such registration. The Company shall have the right to terminate or withdraw any registration initiated by it under this Subsection 2.2 before the effective date of such registration, whether or not any Holder has elected to include Registrable Securities in such registration. The expenses (other than Selling Expenses) of such withdrawn registration shall be borne by the Company in accordance with Subsection 2.6.

2.3 Underwriting Requirements.

(a) If, pursuant to Subsection 2.1, the Initiating Holders intend to distribute the Registrable Securities covered by their request by means of an underwriting, they shall so advise the Company as a part of their request made pursuant to Subsection 2.1, and the Company shall include such information in the Demand Notice. The underwriter(s) will be selected by the Company and reasonably acceptable to a majority in interest of the Initiating Holders, subject only to the reasonable approval of the Company. In such event, the right of any Holder to include such Holder's Registrable Securities in such registration shall be conditioned upon such Holder's participation in such underwriting and the inclusion of such Holder's Registrable Securities in the underwriting to the extent provided herein. All Holders proposing to distribute their securities through such underwriting shall (together with the Company as provided in Subsection 2.4(e)) enter into an underwriting agreement in customary form with the underwriter(s) selected for such underwriting. Notwithstanding any other provision of this Subsection 2.3, if the managing underwriter shall have advised the Initiating Holders in writing that marketing factors require a limitation on the number of shares to be underwritten, then the Initiating Holders shall so advise all Holders of Registrable Securities that otherwise would be underwritten pursuant hereto, and the number of Registrable Securities that may be included in the underwriting shall be allocated among such Holders of Registrable Securities, including the Initiating Holders, in proportion (as nearly as practicable) to the number of Registrable Securities owned by each Holder or in such other proportion as shall mutually be agreed to by all such selling Holders; provided, however, that the number of Registrable Securities held by the Holders to be included in such underwriting shall not be reduced unless all other securities are first entirely excluded from the underwriting.

(b) In connection with any offering involving an underwriting of shares of the Company's capital stock pursuant to Subsection 2.2, the Company shall not be required to include any of the Holders' Registrable Securities in such underwriting unless the Holders accept the terms of the underwriting as agreed upon between the Company and its underwriters, and then only in such quantity as the underwriters in their reasonable discretion determine will not jeopardize the success of the offering by the Company. If the total number of securities, including Registrable Securities, requested by stockholders to be included in such offering exceeds the number of securities to be sold (other than by the Company) that the underwriters in their reasonable discretion determine is compatible with the success of the offering, then the Company

shall be required to include in the offering only that number of such securities, including Registrable Securities, which the underwriters and the Company in their reasonable discretion determine will not jeopardize the success of the offering. If the underwriters determine that less than all of the Registrable Securities requested to be registered can be included in such offering, then the Registrable Securities that are included in such offering shall be allocated among the selling Holders in proportion (as nearly as practicable to) the number of Registrable Securities owned by each selling Holder or in such other proportions as shall mutually be agreed to by all such selling Holders. Notwithstanding the foregoing, in no event shall (i) the number of Registrable Securities included in the offering be reduced unless all other securities (other than securities to be sold by the Company) are first entirely excluded from the offering, (ii) the number of Registrable Securities included in the offering be reduced below twenty-five percent (25%) of the total number of securities included in such offering, unless such offering is the Qualified IPO, in which case the selling Holders may be excluded further if the underwriters make the determination described above and no other stockholder's securities are included in such offering, or (iii) notwithstanding clause (ii) above, any Registrable Securities which are not Key Holder Registrable Securities be excluded from such underwriting unless all Key Holder Registrable Securities are first excluded from such offering. For purposes of the provision in this Subsection 2.3(b) concerning apportionment, for any selling Holder that is a partnership, limited liability company, or corporation, the partners, members, retired partners, retired members, stockholders, and Affiliates of such Holder, or the estates and Immediate Family Members of any such partners, retired partners, members, and retired members and any trusts for the benefit of any of the foregoing Persons, shall be deemed to be a single "selling Holder," and any *pro rata* reduction with respect to such "selling Holder" shall be based upon the aggregate number of Registrable Securities owned by all Persons included in such "selling Holder," as defined in this sentence.

(c) For purposes of Subsection 2.1, a registration shall not be counted as "effected" if, as a result of an exercise of the underwriter's cutback provisions in Subsection 2.3(a), fewer than fifty percent (50%) of the total number of Registrable Securities that Holders have requested to be included in such registration statement are actually included.

2.4 Obligations of the Company. Whenever required under this Section 2 to effect the registration of any Registrable Securities, the Company shall, as expeditiously as reasonably possible:

(a) prepare and file with the SEC a registration statement with respect to such Registrable Securities and use its commercially reasonable efforts to cause such registration statement to become effective and, upon the request of the Holders of a majority of the Registrable Securities registered thereunder, keep such registration statement effective for a period of up to one hundred twenty (120) days or, if earlier, until the distribution contemplated in the registration statement has been completed; provided, however, that (i) such one hundred twenty (120)-day period shall be extended for a period of time equal to the period the Holder refrains, at the request of an underwriter of Common Stock (or other securities) of the Company, from selling any securities included in such registration, and (ii) in the case of any registration of Registrable Securities on Form S-3 that are intended to be offered on a continuous or delayed basis, subject to compliance with applicable SEC rules, such one hundred twenty (120)-day period shall be extended for up to one hundred eighty (180) days, if necessary, to keep the registration statement effective until all such Registrable Securities are sold;

(b) prepare and file with the SEC such amendments and supplements to such registration statement, and the prospectus used in connection with such registration statement, as may be necessary to comply with the Securities Act in order to enable the disposition of all securities covered by such registration statement;

(c) furnish to the selling Holders such numbers of copies of a prospectus, including a preliminary prospectus, as required by the Securities Act, and such other documents as the Holders may reasonably request in order to facilitate their disposition of their Registrable Securities;

(d) use its commercially reasonable efforts to register and qualify the securities covered by such registration statement under such other securities or blue-sky laws of such jurisdictions as shall be reasonably requested by the selling Holders; provided that the Company shall not be required to qualify to do business or to file a general consent to service of process in any such states or jurisdictions, unless the Company is already subject to service in such jurisdiction and except as may be required by the Securities Act;

(e) in the event of any underwritten public offering, enter into and perform its obligations under an underwriting agreement, in usual and customary form, with the underwriter(s) of such offering;

(f) use its commercially reasonable efforts to cause all such Registrable Securities covered by such registration statement to be listed on a national securities exchange or trading system and each securities exchange and trading system (if any) on which similar securities issued by the Company are then listed;

(g) provide a transfer agent and registrar for all Registrable Securities registered pursuant to this Agreement and provide a CUSIP number for all such Registrable Securities, in each case not later than the effective date of such registration;

(h) promptly make available for inspection by the selling Holders, any managing underwriter participating in any disposition pursuant to such registration statement, and any attorney or accountant or other agent retained by any such underwriter or selected by the selling Holders, all financial and other records, pertinent corporate documents, and properties of the Company, and cause the Company's officers, directors, employees, and independent accountants to supply all information reasonably requested by any such seller, underwriter, attorney, accountant, or agent, in each case, as necessary or advisable to verify the accuracy of the information in such registration statement and to conduct appropriate due diligence in connection therewith;

(i) notify each selling Holder, promptly after the Company receives notice thereof, of the time when such registration statement has been declared effective or a supplement to any prospectus forming a part of such registration statement has been filed; and

(j) after such registration statement becomes effective, notify each selling Holder of any request by the SEC that the Company amend or supplement such registration statement or prospectus.

In addition, the Company shall ensure that, at all times after any registration statement covering a public offering of securities of the Company under the Securities Act shall have become effective, its insider trading policy shall provide that the Company's directors may implement a trading program under Rule 10b5-1 of the Exchange Act.

2.5 Furnish Information. It shall be a condition precedent to the obligations of the Company to take any action pursuant to this Section 2 with respect to the Registrable Securities of any selling Holder that such Holder shall furnish to the Company such information regarding itself, the Registrable Securities held by it, and the intended method of disposition of such securities as is reasonably required to effect the registration of such Holder's Registrable Securities.

2.6 Expenses of Registration. All expenses (other than Selling Expenses) incurred in connection with registrations, filings, or qualifications pursuant to Section 2, including all registration, filing, and qualification fees; printers' and accounting fees; and fees and disbursements of counsel for the Company; and the reasonable fees and disbursements of one counsel for the selling Holders ("***Selling Holder Counsel***"), shall be borne and paid by the Company; provided, however, that the Company shall not be required to pay for any expenses of any registration proceeding commenced pursuant to Subsection 2.1 if the registration request is subsequently withdrawn at the request of the Holders of a majority of the Registrable Securities to be registered (in which case all selling Holders shall bear such expenses *pro rata* based upon the number of Registrable Securities that were to be included in the withdrawn registration), unless the Holders of a majority of the Registrable Securities agree to forfeit their right to one registration pursuant to Subsections 2.1(a) or 2.1(b), as the case may be; and provided, further, that if, at the time of such withdrawal, the Holders shall have learned of a material adverse change in the condition, business, or prospects of the Company from that known to the Holders at the time of their request, and have withdrawn the request with reasonable promptness after learning of such information, then the Holders shall not be required to pay any of such expenses and shall not forfeit their right to one registration pursuant to Subsections 2.1(a) or 2.1(b). All Selling Expenses relating to Registrable Securities registered pursuant to this Section 2 shall be borne and paid by the Holders *pro rata* on the basis of the number of Registrable Securities registered on their behalf.

2.7 Delay of Registration. No Holder shall have any right to obtain or seek an injunction restraining or otherwise delaying any registration pursuant to this Agreement as the result of any controversy that might arise with respect to the interpretation or implementation of this Sections 2.

2.8 Indemnification. If any Registrable Securities are included in a registration statement under this Sections 2:

(a) To the extent permitted by law, the Company will indemnify and hold harmless each selling Holder, and the partners, members, officers, directors, and stockholders of each such Holder; legal counsel, accountants and investment advisers for each such Holder; any

underwriter (as defined in the Securities Act) for each such Holder, and each Person, if any, who controls such Holder or underwriter within the meaning of the Securities Act or the Exchange Act, against any Damages, and the Company will pay to each such Holder, underwriter, controlling Person, or other aforementioned Person any legal or other expenses reasonably incurred thereby in connection with investigating or defending any claim or proceeding from which Damages may result, as such expenses are incurred; and provided, however, that the indemnity agreement contained in this Subsection 2.8(a) shall not apply to amounts paid in settlement of any such claim or proceeding if such settlement is effected without the consent of the Company, which consent shall not be unreasonably withheld, conditioned or delayed, nor shall the Company be liable for any Damages to the extent that they arise out of or are based upon actions or omissions made in reliance upon and in conformity with written information furnished by or on behalf of any such Holder, underwriter, controlling Person, or other aforementioned Person expressly for use in connection with such registration.

(b) To the extent permitted by law, each selling Holder, severally and not jointly, will indemnify and hold harmless the Company, and each of its directors, each of its officers who has signed the registration statement, each Person (if any), who controls the Company within the meaning of the Securities Act, legal counsel and accountants for the Company, any underwriter (as defined in the Securities Act), any other Holder selling securities in such registration statement, and any controlling Person of any such underwriter or other Holder, against any Damages, in each case, only to the extent that such Damages arise out of or are based upon actions or omissions made in reliance upon and in conformity with written information furnished by or on behalf of such selling Holder expressly for use in connection with such registration, and each such selling Holder will pay to the Company and each other aforementioned Person any legal or other expenses reasonably incurred thereby in connection with investigating or defending any claim or proceeding from which Damages may result, as such expenses are incurred; provided, however, that the indemnity agreement contained in this Subsection 2.8(b) shall not apply to amounts paid in settlement of any such claim or proceeding if such settlement is effected without the consent of the Holder, which consent shall not be unreasonably withheld, conditioned or delayed; and provided, further, that in no event shall the aggregate amounts payable by any Holder by way of indemnity or contribution under Subsections 2.8(b) and 2.8(d) exceed the proceeds from the offering received by such Holder (net of any Selling Expenses paid by such Holder), except in the case of fraud or willful misconduct by such Holder.

(c) Promptly after receipt by an indemnified party under this Subsection 2.8 of notice of the commencement of any action (including any governmental action) for which a party may be entitled to indemnification hereunder, such indemnified party will, if a claim in respect thereof is to be made against any indemnifying party under this Subsection 2.8, give the indemnifying party notice of the commencement thereof, provided that failure so to notify such indemnifying party shall not relieve the indemnifying party from any liability which the indemnifying party may have on account of this indemnity or otherwise. The indemnifying party shall have the right to participate in such action and, to the extent the indemnifying party so desires, participate jointly with any other indemnifying party to which notice has been given, and to assume the defense thereof with counsel mutually satisfactory to the parties; provided, however, that an indemnified party (together with all other indemnified parties that may be represented without conflict by one counsel) shall have the right to retain one separate counsel, with the fees and expenses to be paid by the indemnifying party, if representation of such indemnified party by the

counsel retained by the indemnifying party would be inappropriate due to actual or potential differing interests between such indemnified party and any other party represented by such counsel in such action or there are one or more legal defenses available to one party which are materially different from or in addition to those available to any other party.

(d) To provide for just and equitable contribution to joint liability under the Securities Act in any case in which either: (i) any party otherwise entitled to indemnification hereunder makes a claim for indemnification pursuant to this Subsection 2.8 but it is judicially determined (by the entry of a final judgment or decree by a court of competent jurisdiction and the expiration of time to appeal or the denial of the last right of appeal) that such indemnification may not be enforced in such case, notwithstanding the fact that this Subsection 2.8 provides for indemnification in such case, or (ii) contribution under the Securities Act may be required on the part of any party hereto for which indemnification is provided under this Subsection 2.8, then, and in each such case, such parties will contribute to the aggregate losses, claims, damages, liabilities, or expenses to which they may be subject (after contribution from others) in such proportion as is appropriate to reflect the relative fault of each of the indemnifying party and the indemnified party in connection with the statements, omissions, or other actions that resulted in such loss, claim, damage, liability, or expense, as well as to reflect any other relevant equitable considerations. The relative fault of the indemnifying party and of the indemnified party shall be determined by reference to, among other things, whether the untrue or allegedly untrue statement of a material fact, or the omission or alleged omission of a material fact, relates to information supplied by the indemnifying party or by the indemnified party and the parties' relative intent, knowledge, access to information, and opportunity to correct or prevent such statement or omission; provided, however, that, in any such case (x) no Holder will be required to contribute any amount in excess of the public offering price of all such Registrable Securities offered and sold by such Holder pursuant to such registration statement, and (y) no Person guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) will be entitled to contribution from any Person who was not guilty of such fraudulent misrepresentation; and provided, further, that in no event shall a Holder's liability pursuant to this Subsection 2.8(d), when combined with the amounts paid or payable by such Holder pursuant to Subsection 2.8(b), exceed the proceeds from the offering received by such Holder (net of any Selling Expenses paid by such Holder), except in the case of willful misconduct or fraud by such Holder.

(e) Unless otherwise superseded by an underwriting agreement entered into in connection with the underwritten public offering, the obligations of the Company and Holders under this Subsection 2.8 shall survive the completion of any offering of Registrable Securities in a registration under this Section 2, and otherwise shall survive the termination of this Agreement.

2.9 Reports Under Exchange Act. With a view to making available to the Holders the benefits of SEC Rule 144 and any other rule or regulation of the SEC that may at any time permit a Holder to sell securities of the Company to the public without registration or pursuant to a registration on Form S-3, the Company shall:

(a) make and keep available adequate current public information, as those terms are understood and defined in SEC Rule 144, at all times after the effective date of the registration statement filed by the Company for the IPO;

(b) use commercially reasonable efforts to file with the SEC in a timely manner all reports and other documents required of the Company under the Securities Act and the Exchange Act (at any time after the Company has become subject to such reporting requirements); and

(c) furnish to any Holder, so long as the Holder owns any Registrable Securities, forthwith upon request (i) to the extent accurate, a written statement by the Company that it has complied with the reporting requirements of SEC Rule 144 (at any time after ninety (90) days after the effective date of the registration statement filed by the Company for the IPO), the Securities Act, and the Exchange Act (at any time after the Company has become subject to such reporting requirements), or that it qualifies as a registrant whose securities may be resold pursuant to Form S-3 (at any time after the Company so qualifies); and (ii) such other information as may be reasonably requested in availing any Holder of any rule or regulation of the SEC that permits the selling of any such securities without registration (at any time after the Company has become subject to the reporting requirements under the Exchange Act) or pursuant to Form S-3 (at any time after the Company so qualifies to use such form).

2.10 Limitations on Subsequent Registration Rights. From and after the date of this Agreement, the Company shall not, without the prior written consent of the Holders of a majority of the Registrable Securities then outstanding, enter into any agreement with any holder or prospective holder of any securities of the Company that (i) would allow such holder or prospective holder to include such securities in any registration unless, under the terms of such agreement, such holder or prospective holder may include such securities in any such registration only to the extent that the inclusion of such securities will not reduce the number of the Registrable Securities of the Holders that are included; or (ii) allow such holder or prospective holder to initiate a demand for registration of any securities held by such holder or prospective holder; provided that this limitation shall not apply to any additional Investor who becomes a party to this Agreement in accordance with Subsection 6.9.

2.11 "Market Stand-off" Agreement. Each Holder hereby agrees that it will not, without the prior written consent of the managing underwriter, during the period commencing on the date of the final prospectus relating to the IPO and ending on the date specified by the Company and the managing underwriter (such period not to exceed one hundred eighty (180) days, or such other period as may be required to accommodate applicable regulatory restrictions), (i) lend, offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, any shares of Common Stock or any securities convertible into or exercisable or exchangeable (directly or indirectly) for Common Stock held immediately before the effective date of the registration statement for the IPO, or (ii) enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of such securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of Common Stock or other securities, in cash, or otherwise. The foregoing provisions of this Subsection 2.11 shall (1) apply only to the IPO, (2) not apply to the sale of any shares to an underwriter pursuant to an underwriting agreement, (3) not apply to the sale of shares of Common Stock acquired in the IPO or in the open market following the IPO, (4) not apply to the transfer of any shares to any trust for the direct or indirect benefit of the Holder or the immediate family of the Holder, provided that the trustee of the trust agrees to be bound in

writing by the restrictions set forth herein, and provided further that any such transfer shall not involve a disposition for value, and (5) be applicable to the Holders only if all officers, directors and all stockholders individually owning one percent (1%) or more of the Company's outstanding Common Stock (after giving effect to conversion into Common Stock of all outstanding Preferred Stock) are subject to the same restrictions. The underwriters in connection with the IPO are intended third-party beneficiaries of this Subsection 2.11 and shall have the right, power and authority to enforce the provisions hereof as though they were a party hereto. Each Holder further agrees to execute such agreements as may be reasonably requested by the underwriters in the IPO that are consistent with this Subsection 2.11 or that are necessary to give further effect thereto. In the event that the Company or the managing underwriter waives or terminates any of the restrictions contained in this Subsection 2.11 or in a lock-up agreement with respect to the securities of any Holder, officer, director or one-percent or greater stockholder of the Company (in any such case, the "***Released Securities***"), the restrictions contained in this Subsection 2.11 and in any lock-up agreements executed by the Investors shall be waived or terminated, as applicable, to the same extent and with respect to the same percentage of securities of each Investor as the percentage of Released Securities represent with respect to the securities held by the applicable Holder, officer, director or one-percent or greater stockholder.

2.12 Restrictions on Transfer.

(a) The Preferred Stock and the Registrable Securities shall not be sold, pledged, or otherwise transferred, and the Company shall not recognize and shall issue stop-transfer instructions to its transfer agent with respect to any such sale, pledge, or transfer, except upon the conditions specified in this Agreement, which conditions are intended to ensure compliance with the provisions of the Securities Act. A transferring Holder will cause any proposed purchaser, pledgee, or transferee of the Preferred Stock and the Registrable Securities held by such Holder to agree to take and hold such securities subject to the provisions and upon the conditions specified in this Agreement. Notwithstanding the foregoing and subject to Subsection 6.1, the Company shall not require any transferee of shares pursuant to an effective registration statement or, following the IPO, SEC Rule 144 to be bound by the terms of this Agreement.

(b) Each certificate, instrument, or book entry representing (i) the Preferred Stock, (ii) the Registrable Securities, and (iii) any other securities issued in respect of the securities referenced in clauses (i) and (ii), upon any stock split, stock dividend, recapitalization, merger, consolidation, or similar event, shall (unless otherwise permitted by the provisions of Subsection 2.12(c)) be notated with a legend substantially in the following form:

> THE SECURITIES REPRESENTED HEREBY HAVE BEEN ACQUIRED FOR INVESTMENT AND HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, AS AMENDED. SUCH SHARES MAY NOT BE SOLD, PLEDGED, OR TRANSFERRED IN THE ABSENCE OF SUCH REGISTRATION OR A VALID EXEMPTION FROM THE REGISTRATION AND PROSPECTUS DELIVERY REQUIREMENTS OF SAID ACT.

THE SECURITIES REPRESENTED HEREBY MAY BE TRANSFERRED ONLY IN ACCORDANCE WITH THE TERMS OF AN AGREEMENT BETWEEN THE COMPANY AND THE STOCKHOLDER, A COPY OF WHICH IS ON FILE WITH THE SECRETARY OF THE COMPANY.

The Holders consent to the Company making a notation in its records and giving instructions to any transfer agent of the Restricted Securities in order to implement the restrictions on transfer set forth in this Subsection 2.12.

(c) The holder of such Restricted Securities, by acceptance of ownership thereof, agrees to comply in all respects with the provisions of this Section 2. Before any proposed sale, pledge, or transfer of any Restricted Securities, unless there is in effect a registration statement under the Securities Act covering the proposed transaction or, following the IPO, the transfer is made pursuant to SEC Rule 144, the Holder thereof shall give notice to the Company of such Holder's intention to effect such sale, pledge, or transfer. Each such notice shall describe the manner and circumstances of the proposed sale, pledge, or transfer in sufficient detail and, if reasonably requested by the Company, shall be accompanied at such Holder's expense by either (i) a written opinion of legal counsel who shall, and whose legal opinion shall, be reasonably satisfactory to the Company, addressed to the Company, to the effect that the proposed transaction may be effected without registration under the Securities Act; (ii) a "no action" letter from the SEC to the effect that the proposed sale, pledge, or transfer of such Restricted Securities without registration will not result in a recommendation by the staff of the SEC that action be taken with respect thereto; or (iii) any other evidence reasonably satisfactory to counsel to the Company to the effect that the proposed sale, pledge, or transfer of the Restricted Securities may be effected without registration under the Securities Act, whereupon the Holder of such Restricted Securities shall be entitled to sell, pledge, or transfer such Restricted Securities in accordance with the terms of the notice given by the Holder to the Company. The Company will not require such a legal opinion or "no action" letter (x) in any transaction in compliance with SEC Rule 144; or (y) in any transaction in which such Holder distributes Restricted Securities to an Affiliate of such Holder for no consideration; provided that, other than in connection with a transaction in compliance with SEC Rule 144 following the IPO, and subject to Subsection 6.1, each transferee agrees in writing to be subject to the terms of this Subsection 2.12. Each certificate, instrument, or book entry representing the Restricted Securities transferred as above provided shall be notated with, except if such transfer is made pursuant to SEC Rule 144 or pursuant to an effective registration statement, the appropriate restrictive legend set forth in Subsection 2.12(b), except that such certificate instrument, or book entry shall not be notated with such restrictive legend if, in the opinion of counsel for such Holder and the Company, such legend is not required in order to establish compliance with any provisions of the Securities Act.

2.13 Termination of Registration Rights. The right of any Holder to request registration or inclusion of Registrable Securities in any registration pursuant to Subsections 2.1 or 2.2 shall terminate upon the earlier to occur of:

(a) the closing of a Deemed Liquidation Event (as defined in the Restated Certificate); and

(b) the fifth (5th) anniversary of the Qualified IPO.

3. Information Rights.

3.1 Delivery of Financial Statements and Other Information. The Company shall deliver to each Major Investor:

(a) as soon as practicable, but in any event within one hundred twenty (120) days after the end of each fiscal year of the Company (i) a balance sheet as of the end of such year, (ii) statements of income and of cash flows for such year, and a comparison between (x) the actual amounts as of and for such fiscal year and (y) the comparable amounts for the prior year and as included in the Budget (as defined in Subsection 3.1(e)) for such year, with an explanation of any material differences between such amounts and a schedule as to the sources and applications of funds for such year, and (iii) a statement of stockholders' equity as of the end of such year, all such financial statements audited and certified by independent public accountants of regionally recognized standing selected by the Company;

(b) as soon as practicable, but in any event within thirty (30) days after the end of each of the first three (3) quarters of each fiscal year of the Company, unaudited statements of income and cash flows for such fiscal quarter, and an unaudited balance sheet and a statement of stockholders' equity as of the end of such fiscal quarter, all prepared in accordance with GAAP (except that such financial statements may (i) be subject to normal year-end audit adjustments; and (ii) not contain all notes thereto that may be required in accordance with GAAP);

(c) as soon as practicable, but in any event within thirty (30) days after the end of each quarter of each fiscal year of the Company, a statement showing the number of shares of each class and series of capital stock and securities convertible into or exercisable for shares of capital stock outstanding at the end of the period, the Common Stock issuable upon conversion or exercise of any outstanding securities convertible or exercisable for Common Stock and the exchange ratio or exercise price applicable thereto, and the number of shares of issued stock options and stock options not yet issued but reserved for issuance, if any, all in sufficient detail as to permit the Investors to calculate their respective percentage equity ownership in the Company, and certified by the chief financial officer or chief executive officer of the Company as being true, complete, and correct;

(d) as soon as practicable, but in any event within thirty (30) days of the end of each month, an unaudited income statement and statement of cash flows for such month, and an unaudited balance sheet and statement of stockholders' equity as of the end of such month, all prepared in accordance with GAAP (except that such financial statements may (i) be subject to normal year-end audit adjustments and (ii) not contain all notes thereto that may be required in accordance with GAAP);

(e) as soon as practicable, but in any event thirty (30) days before the end of each fiscal year, a budget and business plan for the next fiscal year (collectively, the "***Budget***"), prepared on a monthly basis, including balance sheets, income statements, and statements of cash flow for such months and, promptly after prepared, any other budgets or revised budgets prepared by the Company;

(f) as soon as practicable following their provision to the Board of Directors, as applicable, copies of any forecasts or updates thereto provided to management and/or the Board of Directors (provided, however, that the information in this clause (f) shall only be provided to Malin Life Sciences Holdings Limited (together with its Affiliates, "***Malin***"), Novartis Pharma AG (together with its Affiliates, "***Novartis***") and the Fidelity Investors); and

(g) as soon as practicable, but in any event within thirty (30) days after the end of each fiscal quarter of the Company, an update on headcount by department and geographic location (provided, however, that the information in this clause (g) shall only be provided to Malin, Novartis and the Fidelity Investors).

If, for any period, the Company has any subsidiary whose accounts are consolidated with those of the Company, then, in respect of such period, the financial statements delivered pursuant to the foregoing sections shall be the consolidated and consolidating financial statements of the Company and all such consolidated subsidiaries.

Notwithstanding anything else in this Subsection 3.1 to the contrary, the Company may cease providing the information set forth in this Subsection 3.1 during the period starting with the date thirty (30) days before the Company's good-faith estimate of the date of filing or submission of a registration statement if it reasonably concludes it must do so to comply with the SEC rules applicable to such registration statement and related offering; provided that the Company's covenants under this Subsection 3.1 shall be reinstated at such time as the Company is no longer actively employing its commercially reasonable efforts to cause such registration statement to become effective.

3.2 Inspection. The Company shall permit each Major Investor, at such Major Investor's expense, to visit and inspect the Company's properties, examine its books of account and records, and discuss the Company's affairs, finances, and accounts with its officers, during normal business hours of the Company as may be reasonably requested by the Investor; provided, however, that the Company shall not be obligated pursuant to this Subsection 3.2 to provide access to any information that it reasonably and in good faith considers to be a trade secret or confidential information (unless covered by an enforceable confidentiality agreement, in form acceptable to the Company; provided, that, the Company acknowledges and agrees that the confidentiality provisions of Subsection 3.4 hereof shall satisfy such requirement so long as the applicable Major Investor remains bound thereby) or the disclosure of which would adversely affect the attorney-client privilege between the Company and its counsel.

3.3 Termination of Information Rights. The covenants set forth in Subsection 3.1 and Subsection 3.2 shall terminate and be of no further force or effect (i) immediately before the consummation of the IPO, (ii) when the Company first becomes subject to the periodic reporting requirements of Sections 12(g) or 15(d) of the Exchange Act, or (iii) upon the consummation of a Deemed Liquidation Event, whichever event occurs first.

3.4 Confidentiality. Each Investor agrees that such Investor will keep confidential and will not disclose, divulge, or use for any purpose (other than to monitor its investment in the Company) any confidential information obtained from the Company pursuant to the terms of this Agreement (including notice of the Company's intention to file a registration

statement), unless such confidential information (a) is known or becomes known to the public in general (other than as a result of a breach of this Subsection 3.4 by such Investor), (b) is or has been independently developed or conceived by the Investor without use of the Company's confidential information, or (c) is or has been made known or disclosed to the Investor by a third party without a breach known by the Investor of any obligation of confidentiality such third party may have to the Company; provided, however, that an Investor may disclose confidential information (i) to its attorneys, accountants, consultants, and other professionals to the extent necessary to obtain their services in connection with monitoring its investment in the Company; (ii) to any prospective purchaser of any Registrable Securities from such Investor, if such prospective purchaser agrees to be bound by the provisions of this Subsection 3.4; (iii) to any existing or prospective Affiliate, partner, member, stockholder, or wholly owned subsidiary of such Investor in the ordinary course of business, provided that such Investor informs such Person that such information is confidential and directs such Person to maintain the confidentiality of such information; or (iv) as may otherwise be required by law, provided that the Investor promptly notifies the Company of such disclosure and takes reasonable steps to minimize the extent of any such required disclosure.

4. Rights to Future Stock Issuances.

4.1 Right of First Offer. Subject to the terms and conditions of this Subsection 4.1 and applicable securities laws, if the Company proposes to offer or sell any New Securities, the Company shall first offer such New Securities to each Major Investor. A Major Investor shall be entitled to apportion the right of first offer hereby granted to such Major Investor in such proportions as it deems appropriate, among (i) itself, (ii) its Affiliates and (iii) its beneficial interest holders, such as limited partners, members or any other Person having "beneficial ownership," as such term is defined in Rule 13d-3 promulgated under the Exchange Act, of such Major Investor ("***Investor Beneficial Owners***"); provided that each such Affiliate or Investor Beneficial Owner (x) is not a competitor or FOIA Party (provided, that the parties hereto acknowledge and agree that Novartis is not a competitor), unless such party's purchase of New Securities is otherwise consented to by the Board of Directors and (y) agrees to enter into this Agreement and each of the Voting Agreement and Right of First Refusal and Co-Sale Agreement of even date herewith among the Company, the Investors and the other parties named therein, as an "Investor" under each such agreement (provided that any competitor or FOIA Party shall not be entitled to any rights as an Investor under Subsections 3.1 or 3.2 hereof; and provided, further that the parties hereto acknowledge and agree that Novartis is not a competitor).

(a) The Company shall give notice (an "***Offer Notice***") to each Major Investor, stating (i) its bona fide intention to offer New Securities, (ii) the number of such New Securities to be offered, and (iii) the price and terms, if any, upon which the Company proposes to offer such New Securities.

(b) By notification to the Company within twenty (20) days after the Offer Notice is given, each Major Investor may elect to purchase or otherwise acquire, at the price and on the terms specified in the Offer Notice, up to that portion of such New Securities which equals the proportion that the Common Stock then held by such Major Investor (including all shares of Common Stock then issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of the Preferred Stock and any other Derivative Securities then held by such Major

Investor) bears to the total Common Stock of the Company then outstanding (assuming full conversion and/or exercise, as applicable, of all Preferred Stock and other Derivative Securities). At the expiration of such twenty (20)-day period, the Company shall promptly notify each Major Investor that elects to purchase or acquire all the shares available to it (each, a "***Fully Exercising Investor***") of any other Major Investor's failure to do likewise. During the ten (10)-day period commencing after the Company has given such notice, each Fully Exercising Investor may, by giving notice to the Company, elect to purchase or acquire, in addition to the number of shares specified above, up to that portion of the New Securities for which Major Investors were entitled to subscribe but that were not subscribed for by the Major Investors which is equal to the proportion that the Common Stock issued and held, or issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of Preferred Stock and any other Derivative Securities then held, by such Fully Exercising Investor bears to the Common Stock issued and held, or issuable (directly or indirectly) upon conversion and/or exercise, as applicable, of the Preferred Stock and any other Derivative Securities then held, by all Fully Exercising Investors who wish to purchase such unsubscribed shares. The closing of any sale pursuant to this Subsection 4.1(b) shall occur within the later of ninety (90) days of the date that the Offer Notice is given and the date of initial sale of New Securities pursuant to Subsection 4.1(c).

(c) If all New Securities referred to in the Offer Notice are not elected to be purchased or acquired as provided in Subsection 4.1(b), the Company may, during the ninety (90)-day period following the expiration of the periods provided in Subsection 4.1(b), offer and sell the remaining unsubscribed portion of such New Securities to any Person or Persons at a price not less than, and upon terms no more favorable to the offeree than, those specified in the Offer Notice. If the Company does not enter into an agreement for the sale of the New Securities within such period, or if such agreement is not consummated within thirty (30) days of the execution thereof, the right provided hereunder shall be deemed to be revived and such New Securities shall not be offered unless first reoffered to the Investors in accordance with this Subsection 4.1.

(d) The right of first offer in this Subsection 4.1 shall not be applicable to (i) Exempted Securities (as defined in the Restated Certificate), (ii) shares of Common Stock issued in the IPO and (iii) the issuance of shares of Series D Preferred pursuant to the Purchase Agreement.

4.2 Termination. The covenants set forth in Subsection 4.1 shall terminate and be of no further force or effect (i) immediately before the consummation of the IPO or (ii) upon the consummation of a Deemed Liquidation Event, whichever event occurs first.

5. Additional Covenants.

5.1 Insurance. The Company shall use its commercially reasonable efforts to maintain, from financially sound and reputable insurers, Directors and Officers liability insurance and term "key person" insurance on Eric Ostertag, each in an amount and on terms and conditions satisfactory to the Board of Directors, until such time as the Board of Directors determines that such insurance should be discontinued. The "key person" policy shall name the Company as loss payee, and neither policy shall be cancelable by the Company without prior approval by the Board of Directors (including at least one (1) Series Preferred Director). Eric Ostertag has represented to the Company that, to the extent Mr. Ostertag is named under such "key

person" policy, Mr. Ostertag will execute and deliver to the Company, as reasonably requested, a written notice and consent form with respect to such policy. Notwithstanding any other provision of this Section 5.1 to the contrary, for so long as a Series Preferred Director is serving on the Board of Directors, the Company shall not cease to maintain a Directors and Officers liability insurance policy in an amount of at least $2,000,000, or such other amount as agreed to by the Board of Directors (including at least one (1) Series Preferred Director), and the Company shall annually, within one hundred twenty (120) days after the end of each fiscal year of the Company, deliver to the Series Preferred Directors a certification that such a Directors and Officers liability insurance policy remains in effect.

5.2 Employee Agreements. The Company will cause each person now or hereafter employed by it or by any subsidiary (or engaged by the Company or any subsidiary as a consultant/independent contractor) with access to confidential information and/or trade secrets to enter into a nondisclosure and proprietary rights assignment agreement. In addition, the Company shall not amend, modify, terminate, waive, or otherwise alter, in whole or in part, any of the above-referenced agreements or any restricted stock agreement between the Company and any employee, without the consent of the Board of Directors.

5.3 Employee Stock. Unless otherwise approved by the Board of Directors or a duly authorized committee thereof, all future employees and consultants of the Company who purchase, receive options to purchase, or receive awards of shares of the Company's capital stock after the date hereof shall be required to execute restricted stock or option agreements, as applicable, providing for vesting of shares as determined by the Board of Directors or a duly authorized committee thereof.

5.4 Board Matters. Unless otherwise determined by the vote of a majority of the directors then in office, the Board of Directors shall meet at least quarterly in accordance with an agreed-upon schedule. The Company shall reimburse the non-employee directors for all reasonable out-of-pocket travel expenses incurred (consistent with the Company's travel policy) in connection with attending meetings of the Board of Directors or other activities, including, but not limited to meetings and conferences, each as required or requested by the Company.

5.5 Successor Indemnification. If the Company or any of its successors or assignees consolidates with or merges into any other Person and is not the continuing or surviving corporation or entity of such consolidation or merger, then to the extent necessary, proper provision shall be made so that the successors and assignees of the Company assume the obligations of the Company with respect to indemnification of members of the Board of Directors as in effect immediately before such transaction, whether such obligations are contained in the Company's Bylaws, the Restated Certificate, or elsewhere, as the case may be.

5.6 Indemnification Matters. The Company hereby acknowledges that one (1) or more of the directors nominated to serve on the Board of Directors by the Investors (each, a "***Designated Director***") may have certain rights to indemnification, advancement of expenses and/or insurance provided by one or more of the Investors and certain of their Affiliates (collectively, the "***Other Indemnitors***"). The Company hereby agrees (a) that it is the indemnitor of first resort (*i.e.*, its obligations to any such Designated Director are primary and any obligation

of the Other Indemnitors to advance expenses or to provide indemnification for the same expenses or liabilities incurred by such Designated Director are secondary); (b) that the Company shall be required to advance the full amount of expenses incurred by such Designated Director and shall be liable for the full amount of all expenses, judgments, penalties, fines and amounts paid in settlement by or on behalf of any such Designated Director to the extent legally permitted and as required by the Restated Certificate or the Bylaws of the Company (or any agreement between the Company and such Designated Director), without regard to any rights such Designated Director may have against the Other Indemnitors; and (c) that the Company irrevocably waives, relinquishes and releases the Other Indemnitors from any and all claims against the Other Indemnitors for contribution, subrogation or any other recovery of any kind in respect thereof. The Company further agrees that no advancement or payment by the Other Indemnitors on behalf of any Designated Director with respect to any claim for which such Designated Director has sought indemnification from the Company shall affect the foregoing and the Other Indemnitors shall have a right of contribution and/or be subrogated to the extent of such advancement or payment to all of the rights of recovery of such Designated Director against the Company.

5.7 Right to Conduct Activities. The Company hereby agrees and acknowledges that Malin, Longitude Venture Partners III, L.P. (together with its Affiliates, "***Longitude***"), Vivo Capital Fund VIII, L.P. (together with its Affiliates, "***Vivo***"), Boxer Capital, LLC (together with its Affiliates, "***Boxer***"), Novartis, Aisling Capital IV, LP (together with its Affiliates, "***Aisling***"), Schonfeld Strategic 460 Fund LLC (together with its Affiliates, "***Schonfeld***") and the Fidelity Investors each invest in numerous portfolio companies, some of which may be deemed competitive with the Company's business (as currently conducted or as currently propose to be conducted). The Company hereby agrees that, to the extent permitted under applicable law, none of Malin, Longitude, Vivo, Boxer, Novartis, Aisling, Schonfeld and each Fidelity Investor shall be liable to the Company for any claim arising out of, or based upon, (i) the investment by Malin, Longitude, Vivo, Boxer, Novartis, Aisling, Schonfeld or any Fidelity Investor, as applicable, in any entity competitive with the Company or (ii) actions taken by any partner, shareholder, director, officer or other representative of Malin, Longitude, Vivo, Boxer, Novartis, Aisling, Schonfeld or any Fidelity Investor, as applicable, to assist any such competitive company, whether or not such action was taken as a member of the board of directors of such competitive company or otherwise, and whether or not such action has a detrimental effect on the Company; provided, however, that the foregoing shall not relieve (x) any of the Investors from liability associated with the unauthorized disclosure of the Company's confidential information obtained pursuant to this Agreement, or (y) any director of the Company from any liability associated with his or her fiduciary duties to the Company.

5.8 Foreign Corrupt Practices Act. The Company shall not, and shall not permit any of its Affiliates or any of its or their respective directors, officers, managers, members or employees, in each case with respect to the Company's business, to, (a) give, agree, offer or promise to give any illegal gift, contribution, payment, bribe, kickback or anything of value to any supplier, customer, governmental official or employee, political party, candidate for public office or other Person or entity who was, is or may be in a position to help or hinder the Company or make or agree to make an illegal contribution, or reimburse any illegal political gift or contribution made by any other person or entity, to any candidate for federal, state, local or foreign public office or political party, or (b) establish or maintain any unrecorded fund or asset or made any false, incomplete or misleading entries on any books or records for any purpose, in each case, in violation of the U.S. Foreign Corrupt Practices Act or other applicable anti-corruption laws in any applicable jurisdiction.

5.9 Termination of Covenants. The covenants set forth in this Section 5, except for Subsections 5.5, 5.6, 5.7 and 5.8 shall terminate and be of no further force or effect (i) immediately before the consummation of the IPO or (ii) upon the consummation of a Deemed Liquidation Event, whichever event occurs first.

6. Miscellaneous.

6.1 Successors and Assigns. The terms and conditions of this Agreement shall inure to the benefit of and be binding upon the respective successors and permitted assignees of the parties. The rights under this Agreement may be assigned (but only with all related obligations) by a Holder to a transferee of Registrable Securities that (i) is an Affiliate of a Holder; (ii) is a Holder's Immediate Family Member or a trust for the benefit of an individual Holder or one or more of such Holder's Immediate Family Members; or (iii) after such transfer, holds at least 250,000 Registrable Securities (subject to appropriate adjustment for stock splits, stock dividends, combinations, and other recapitalizations) other than a competitor of the Company (provided, that the parties hereto acknowledge and agree that Novartis is not a competitor of the Company); provided, however, that (x) the Company, within a reasonable time after such transfer, is furnished with written notice of the name and address of such transferee and the Registrable Securities with respect to which such rights are being transferred; and (y) such transferee agrees in a written instrument delivered to the Company to be bound by and subject to the terms and conditions of this Agreement. For the purposes of determining the number of shares of Registrable Securities held by a transferee, the holdings of a transferee (1) that is an Affiliate or stockholder of a Holder; (2) who is a Holder's Immediate Family Member; or (3) that is a trust for the benefit of an individual Holder or such Holder's Immediate Family Member shall be aggregated together and with those of the transferring Holder; and provided, further, that all transferees who would not qualify individually for assignment of rights shall have a single attorney-in-fact for the purpose of exercising any rights, receiving notices, or taking any action under this Agreement. Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties hereto or their respective successors and permitted assignees any rights, remedies, obligations or liabilities under or by reason of this Agreement, except as expressly provided herein.

6.2 Governing Law. This Agreement shall be governed by the internal law of the State of Delaware as applied to agreements among Delaware residents entered into and to be performed entirely within the State of Delaware, without regard to principles thereof regarding conflict of laws.

6.3 Counterparts. This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Counterparts may be delivered via facsimile, electronic mail (including .pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, *e.g.*, www.docusign.com) or other transmission method and any counterpart so delivered shall be deemed to have been duly and validly delivered and be valid and effective for all purposes**.**

6.4 Titles and Subtitles. The titles and subtitles used in this Agreement are for convenience only and are not to be considered in construing or interpreting this Agreement.

6.5 Notices. All notices and other communications given or made pursuant to this Agreement shall be in writing and shall be deemed effectively given upon the earlier of actual receipt or (i) personal delivery to the party to be notified; (ii) when sent, if sent by electronic mail or facsimile during the recipient's normal business hours, and if not sent during normal business hours, then on the recipient's next business day; (iii) five (5) days after having been sent by registered or certified mail, return receipt requested, postage prepaid; or (iv) one (1) business day after the business day of deposit with a nationally recognized overnight courier, freight prepaid, specifying next-day delivery, with written verification of receipt. All communications shall be sent to the Investors at their addresses as set forth on Schedule A hereto, or to such e-mail address, facsimile number, or address as subsequently modified by written notice given in accordance with this Subsection 6.5.

If notice is given to the Company, it shall be sent to:

Poseida Therapeutics, Inc.
9390 Towne Centre Drive, Suite 200
San Diego, California 92121
Attention: Eric Ostertag, Chief Executive Officer

and a copy (which shall not constitute notice) shall also be sent to:

Cooley LLP
One Freedom Square, Reston Town Center
11951 Freedom Drive
Reston, Virginia 20190-5656
Attention: Kenneth Krisko, Esq.
Facsimile: (703) 456-8100
E-mail: kkrisko@cooley.com

If notice is given to Novartis, a copy shall also be sent to:

Arnold & Porter
250 West 55th Street
New York, NY 10019-9710
Attention: Derek Stoldt, Esq.
E-mail: derek.stoldt@arnoldporter.com

If notice is given to Longitude, a copy shall also be sent to:

Latham & Watkins LLP
140 Scott Drive
Menlo Park, CA 94025
Attention: Brian J. Cuneo, Esq.
Facsimile: (650) 463 2600
E-mail: brian.cuneo@lw.com

If notice is given to Malin, a copy shall also be sent to:

DLA Piper LLP (US)

51 John F. Kennedy Parkway, Suite 120
Short Hills, New Jersey 07078
Attention: Andrew P. Gilbert, Esq.
E-mail: andrew.gilbert@dlapiper.com

If notice is given to the Fidelity Investors, a copy shall also be sent to:

Greenberg Traurig, LLP
One International Place, Suite 2000
Boston, MA 02110
Attention: Bradley A. Jacobson, Esq.
E-mail: jacobsonb@gtlaw.com

6.6 Amendments and Waivers. Any term of this Agreement may be amended and the observance of any term of this Agreement may be waived (either generally or in a particular instance, and either retroactively or prospectively) only with the written consent of the Company and Investors holding at least sixty percent (60%) of the Registrable Securities that are held by all of the Investors; provided that the Company may in its sole discretion waive compliance with Subsection 2.12(c) (and the Company's failure to object promptly in writing after notification of a proposed assignment allegedly in violation of Subsection 2.12(c) shall be deemed to be a waiver); and provided, further, that any provision hereof may be waived by any waiving party on such party's own behalf, without the consent of any other party. Notwithstanding the foregoing, this Agreement may not be amended or terminated and the observance of any term hereof may not be waived with respect to any Investor without the written consent of such Investor, unless such amendment, termination, or waiver applies to all Investors in the same fashion (it being agreed that a waiver of the provisions of Section 4 with respect to a particular transaction shall be deemed to apply to all Investors in the same fashion if such waiver does so by its terms, notwithstanding the fact that certain Investors may nonetheless, by agreement with the Company, purchase securities in such transaction). Further, this Agreement may not be amended, and no provision hereof may be waived, in each case, in any way which would adversely affect the rights of the Key Holders hereunder in a manner disproportionate to any adverse effect such amendment or waiver would have on the rights of the Investors hereunder, without also the written consent of the holders of a majority of the Registrable Securities held by the Key Holders. The Company shall give prompt notice of any amendment or termination hereof or waiver hereunder to any party hereto that did not consent in writing to such amendment, termination or waiver. Any amendment, termination or waiver effected in accordance with this Subsection 6.6 shall be binding on all parties hereto, regardless of whether any such party has consented thereto. No waivers of or exceptions to any term, condition, or provision of this Agreement, in any one or more instances, shall be deemed to be or construed as a further or continuing waiver of any such term, condition, or provision.

6.7 Severability. In case any one or more of the provisions contained in this Agreement is for any reason held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision of this Agreement, and such invalid, illegal, or unenforceable provision shall be reformed and construed so that it will be valid, legal, and enforceable to the maximum extent permitted by law.

6.8 Aggregation of Stock. All shares of Registrable Securities held or acquired by Affiliates shall be aggregated together for the purpose of determining the availability of any rights under this Agreement and such Affiliated persons may apportion such rights as among themselves in any manner they deem appropriate.

6.9 Entire Agreement. This Agreement (including any Schedules and Exhibits hereto) constitutes the full and entire understanding and agreement among the parties with respect to the subject matter hereof, and any other written or oral agreement relating to the subject matter hereof existing between the parties is expressly canceled. To the extent that a party hereto is also party to that certain Stockholder Agreement, dated as of February 10, 2015, by and among the Company, Transposagen Biopharmaceuticals, Inc. and the stockholders party thereto (the "***February Stockholder Agreement***"), each such party agrees that the terms set forth herein shall govern in the event of any conflict between such terms and the terms of the February Stockholder Agreement.

6.10 Dispute Resolution. The parties (a) hereby irrevocably and unconditionally submit to the jurisdiction of the state courts of Delaware and to the jurisdiction of the United States District Court for the District of Delaware for the purpose of any suit, claim, action or other proceeding arising out of or based upon this Agreement (each, a "***Proceeding***"), (b) agree not to commence any Proceeding except in the state courts of Delaware or the United States District Court for the District of Delaware, and (c) hereby waive, and agree not to assert, by way of motion, as a defense, or otherwise, in any such Proceeding any claim that it is not subject personally to the jurisdiction of the above-named courts, that its property is exempt or immune from attachment or execution, that the Proceeding is brought in an inconvenient forum, that the venue of the Proceeding is improper or that this Agreement or the subject matter hereof may not be enforced in or by such court. If any party to this Agreement seeks to enforce its rights under this Agreement by legal proceedings, the non-prevailing party shall pay all costs and expenses incurred by the prevailing party, including, without limitation, all reasonable attorneys' fees, in addition to any other relief to which such party may be entitled.

6.11 WAIVER OF JURY TRIAL. EACH PARTY HEREBY WAIVES ITS RIGHTS TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION BASED UPON OR ARISING OUT OF THIS AGREEMENT, THE OTHER TRANSACTION DOCUMENTS, THE SECURITIES OR THE SUBJECT MATTER HEREOF OR THEREOF. THE SCOPE OF THIS WAIVER IS INTENDED TO BE ALL-ENCOMPASSING OF ANY AND ALL DISPUTES THAT MAY BE FILED IN ANY COURT AND THAT RELATE TO THE SUBJECT MATTER OF THIS TRANSACTION, INCLUDING, WITHOUT LIMITATION, CONTRACT CLAIMS, TORT CLAIMS (INCLUDING NEGLIGENCE), BREACH OF DUTY CLAIMS, AND ALL OTHER COMMON LAW AND STATUTORY CLAIMS. THIS SECTION HAS BEEN FULLY DISCUSSED BY EACH OF THE PARTIES HERETO AND THESE PROVISIONS WILL NOT BE SUBJECT TO ANY EXCEPTIONS. EACH PARTY HERETO HEREBY FURTHER WARRANTS AND REPRESENTS THAT SUCH PARTY HAS REVIEWED THIS WAIVER WITH ITS LEGAL COUNSEL, AND THAT SUCH PARTY KNOWINGLY AND VOLUNTARILY WAIVES ITS JURY TRIAL RIGHTS FOLLOWING CONSULTATION WITH LEGAL COUNSEL.

6.12 Delays or Omissions. No delay or omission to exercise any right, power, or remedy accruing to any party under this Agreement, upon any breach or default of any other party under this Agreement, shall impair any such right, power, or remedy of such nonbreaching or nondefaulting party, nor shall it be construed to be a waiver of or acquiescence to any such breach or default, or to any similar breach or default thereafter occurring, nor shall any waiver of any single breach or default be deemed a waiver of any other breach or default theretofore or thereafter occurring. All remedies, whether under this Agreement or by law or otherwise afforded to any party, shall be cumulative and not alternative.

6.13 Acknowledgment. The Company acknowledges that the Investors are in the business of venture capital investing and therefore review the business plans and related proprietary information of many enterprises, including enterprises which may have products or services which compete directly or indirectly with those of the Company. Nothing in this Agreement shall preclude or in any way restrict any Investor from investing or participating in any particular enterprise whether or not such enterprise has products or services which compete with those of the Company.

6.14 Additional Investors. Notwithstanding anything to the contrary contained herein, if the Company issues additional shares of the Company's Preferred Stock after the date hereof, any purchaser of such shares of Preferred Stock shall become a party to this Agreement by executing and delivering an additional counterpart signature page to this Agreement, and thereafter shall be deemed an "Investor" for all purposes hereunder. No action or consent by the Investors shall be required for such joinder to this Agreement by such additional Investor, so long as such additional Investor has agreed in writing to be bound by all of the obligations as an "Investor" hereunder.

6.15 Amendment of Prior Agreement. The Prior Agreement is hereby amended and restated and superseded in its entirety and restated herein. Such amendment and restatement shall be effective upon the execution of this Agreement by the Company and the parties required for an amendment pursuant to Section 6.6 of the Prior Agreement. Upon such execution, all provisions of, rights granted and covenants made in the Prior Agreement are waived, released and superseded in their entirety by the provisions hereof and shall have no further force or effect.

[Remainder of Page Intentionally Left Blank; Signature Pages Follow]

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first written above.

COMPANY:

POSEIDA THERAPEUTICS, INC.

By: /s/ Eric Ostertag
Name: Eric Ostertag
Title: Chief Executive Officer

INVESTOR:

FIDELITY MT. VERNON STREET TRUST: FIDELITY SERIES GROWTH COMPANY FUND

By: /s/ Chris Maher
Name: Chris Maher
Title: Authorized Signatory

[Signature Page to Series D Amended and Restated Investors' Rights Agreement]

INVESTOR:

FIDELITY MT. VERNON STREET TRUST: FIDELITY GROWTH COMPANY FUND

By: /s/ Chris Maher
Name: Chris Maher
Title: Authorized Signatory

[Signature Page to Series D Amended and Restated Investors' Rights Agreement]

INVESTOR:

FIDELITY MT. VERNON STREET TRUST: FIDELITY GROWTH COMPANY K6 FUND

By: /s/ Chris Maher
Name: Chris Maher
Title: Authorized Signatory

[Signature Page to Series D Amended and Restated Investors' Rights Agreement]

INVESTOR:

FIDELITY SELECT PORTFOLIOS: BIOTECHNOLOGY PORTFOLIO

By: /s/ Chris Maher
Name: Chris Maher
Title: Authorized Signatory

[Signature Page to Series D Amended and Restated Investors' Rights Agreement]

INVESTOR:

FIDELITY ADVISOR SERIES VII: FIDELITY ADVISOR BIOTECHNOLOGY FUND

By: /s/ Chris Maher
Name: Chris Maher
Title: Authorized Signatory

[Signature Page to Series D Amended and Restated Investors' Rights Agreement]

INVESTOR:

FIDELITY ADVISOR SERIES VII: FIDELITY ADVISOR HEALTH CARE FUND

By /s/ Chris Maher
Name: Chris Maher
Title: Authorized Signatory

[Signature Page to Series D Amended and Restated Investors' Rights Agreement]

INVESTOR:

FIDELITY SELECT PORTFOLIOS: HEALTH CARE PORTFOLIO

By: /s/ Chris Maher
Name: Chris Maher
Title: Authorized Signatory

INVESTOR:

VARIABLE INSURANCE PRODUCTS FUND IV: HEALTH CARE PORTFOLIO

By: /s/ Chris Maher
Name: Chris Maher
Title: Authorized Signatory

INVESTOR:

FIDELITY CENTRAL INVESTMENT PORTFOLIOS LLC:
FIDELITY HEALTH CARE CENTRAL FUND

By: /s/ Chris Maher
Name: Chris Maher
Title: Authorized Signatory

[Signature Page to Series D Amended and Restated Investors' Rights Agreement]

INVESTOR:

FIDELITY GROWTH COMPANY COMMINGLED POOL

BY: FIDELITY MANAGEMENT TRUST COMPANY, AS TRUSTEE

By: /s/ Chris Maher
Name: Chris Maher
Title: Authorized Signatory

INVESTOR:

ADAGE CAPITAL PARTNERS, LP

By: Adage Capital Partners, GP, LLC
Its: General Partner

By: Adage Capital Advisors, LLC
Its: Managing Member

By: /s/ Dan Lehan
Name: Dan Lehan
Title: Chief Operating Officer

INVESTOR:

Aisling Capital IV, LP

By: /s/ Robert Wenzel
Name: Robert Wenzel
Title: CFO

INVESTOR:

PWCM MASTER FUND LTD.

LMA SPC *for and on behalf of* **MAP 98 SEGREGATED PORTFOLIO**
PENTWATER EQUITY OPPORTUNITIES MASTER FUND LTD.
PENTWATER MERGER ARBITRAGE MASTER FUND LTD.
PENTWATER UNCONSTRAINED MASTER FUND LTD.

By: Pentwater Capital Management, LP
Its: Investment Advisor

By: /s/ Neal Nenadovic
Name: Neal Nenadovic
Title: Chief Financial Officer
Pentwater Capital Management LP

INVESTOR:

PENTWATER CREDIT MASTER FUND LTD.

By: Pentwater Capital Management, LP
Its: Investment Advisor

By: /s/ Neal Nenadovic
Name: Neal Nenadovic
Title: Chief Financial Officer
Pentwater Capital Management LP

INVESTOR:

RAPHA CAPITAL INVESTMENT XI LLC

By: Rapha Capital Management, LLC
Its: Manager

By: /s/ Kevin M. Slawin
Name: Kevin M. Slawin, M.D.
Title: President

[Signature Page to Series D Amended and Restated Investors' Rights Agreement]

INVESTOR:

SCHONFELD STRATEGIC 460 FUND LLC

By: /s/ Ryan Tolkin
Name: Ryan Tolkin
Title: Chief Investment Officer

INVESTOR:

LONGITUDE VENTURE PARTNERS III, L.P.

By: Longitude Capital Partners III, LLC
Its: General Partner

By: /s/ Patrick Enright
Name: Patrick Enright
Its: Managing Director

INVESTOR:

MALIN LIFE SCIENCES HOLDINGS LIMITED

By: /s/ Darragh Lyons
Name: Darragh Lyons
Its: Chief Executive Officer

INVESTOR:

NOVARTIS PHARMA AG

By: /s/ Marc Ceulemans
Name: Marc Ceulemans
Its: Authorized signatory

INVESTOR:

BOXER CAPITAL, LLC

By: /s/ Aaron Davis
Name: Aaron Davis
Its: Chief Executive Officer

MVA INVESTORS, LLC

By: /s/ Aaron Davis
Name: Aaron Davis
Title: Chief Executive Officer

INVESTOR:

VIVO CAPITAL FUND VIII, L.P.

By: Vivo Capital VIII, LLC
Its: General Partner

By: /s/ Albert Cha
Name: Albert Cha
Its: Managing Member

VIVO CAPITAL SURPLUS FUND VIII, L.P.

By: Vivo Capital VIII, LLC
Its: General Partner

By: /s/ Albert Cha
Name: Albert Cha
Its: Managing Member

INVESTOR:

TWIN PRIME INVESTMENTS LLC

By: /s/ Eric M. Ostertag
Name: Eric M. Ostertag
Its: Sole Director

KEY HOLDER:

TITAN LLC

By: /s/ Jeffrey Bejma
Name: Jeffrey Bejma
Its: Manager

KEY HOLDER:

ERIC OSTERTAG

By: /s/ Eric Ostertag

THE OSTERTAG FAMILY TRUST DATED MARCH 30, 2016

By: /s/ Eric M. Ostertag
Name: Eric M. Ostertag
Its: Trustee

By: /s/ Zahra Tavakoli
Name: Zahra Tavakoli
Its: Trustee

THE ERIC OSTERTAG LIVING TRUST DATED MARCH 30, 2016

By: /s/ Eric M. Ostertag
Name: Eric M. Ostertag
Its: Trustee

SCHEDULE A

INVESTORS

SCHEDULE B

KEY HOLDERS

Cooley

Sean M. Clayton
+1 858 550 6034
sclayton@cooley.com

July 6, 2020

Poseida Therapeutics, Inc.
9390 Towne Centre Drive, Suite 200
San Diego, California 92121

Ladies and Gentlemen:

You have requested our opinion, as counsel to Poseida Therapeutics, Inc., a Delaware corporation (the "***Company***"), in connection with the filing by the Company of a Registration Statement (File No. 333-239321) on Form S-1 (the "***Registration Statement***") with the Securities and Exchange Commission, including a related prospectus filed with the Registration Statement (the "***Prospectus***"), covering an underwritten public offering of up to 11,500,000 shares (the "***Shares***") of the Company's common stock, par value $0.0001 ("***Common Stock***"), which includes up to 1,500,000 Shares that may be sold pursuant to the exercise of an option to purchase additional shares.

In connection with this opinion, we have (i) examined and relied upon (a) the Registration Statement and the Prospectus, (b) the Company's Certificate of Incorporation and Bylaws, each as currently in effect, (c) the Company's Amended and Restated Certificate of Incorporation, filed as Exhibit 3.2 to the Registration Statement, and the Company's Amended and Restated Bylaws, filed as Exhibit 3.4 to the Registration Statement, each of which will be in effect immediately prior to the closing of the offering contemplated by the Registration Statement, and (d) originals or copies certified to our satisfaction of such records, documents, certificates, memoranda and other instruments as in our judgment are necessary or appropriate to enable us to render the opinion expressed below and (ii) assumed that (a) the Shares will be sold at a price established by the Board of Directors of the Company or a duly constituted committee thereof and (b) the Amended and Restated Certificate of Incorporation referred to in clause (i)(c) is filed with the Secretary of State of the State of Delaware before issuance of the Shares. We have undertaken no independent verification with respect to such matters. We have assumed the genuineness and authenticity of all documents submitted to us as originals and the conformity to originals of all documents submitted to us as copies, the accuracy, completeness and authenticity of certificates of public officials and the due execution and delivery of all documents by all persons other than the Company where execution and delivery are prerequisites to the effectiveness thereof. As to certain factual matters, we have relied upon a certificate of an officer of the Company and have not independently verified such matters.

Our opinion is expressed only with respect to the General Corporation Law of the State of Delaware. We express no opinion to the extent that any other laws are applicable to the subject matter hereof and express no opinion and provide no assurance as to compliance with any federal or state securities law, rule or regulation.

On the basis of the foregoing, and in reliance thereon, we are of the opinion that the Shares, when sold and issued against payment therefor as described in the Registration Statement and the Prospectus, will be validly issued, fully paid and non-assessable.

We consent to the reference to our firm under the caption “Legal Matters” in the Prospectus included in the Registration Statement and to the filing of this opinion as an exhibit to the Registration Statement.

Very truly yours,

Cooley LLP

By: /s/ Sean M. Clayton
Sean M. Clayton

POSEIDA THERAPEUTICS, INC.
2015 EQUITY INCENTIVE PLAN

ADOPTED BY THE BOARD OF DIRECTORS: FEBRUARY 5, 2015
AMENDED BY THE BOARD OF DIRECTORS: MAY 4, 2015
APPROVED BY THE STOCKHOLDERS: MAY 4, 2015
AMENDED BY THE BOARD OF DIRECTORS: DECEMBER 15, 2015
APPROVED BY THE STOCKHOLDERS: DECEMBER 15, 2015
AMENDED BY THE BOARD OF DIRECTORS: MAY 25, 2016
APPROVED BY THE STOCKHOLDERS: MAY 25, 2016
AMENDED BY THE BOARD OF DIRECTORS: OCTOBER 24, 2018
APPROVED BY THE STOCKHOLDERS: OCTOBER 24, 2018
AMENDED BY THE BOARD OF DIRECTORS: MARCH 19, 2019
APPROVED BY THE STOCKHOLDERS: MARCH 19, 2019
AMENDED BY THE BOARD OF DIRECTORS: JUNE 23, 2020
APPROVED BY THE STOCKHOLDERS: JUNE 23, 2020
TERMINATION DATE: FEBRUARY 5, 2025

1. GENERAL.

(a) Eligible Stock Award Recipients. The persons eligible to receive Stock Awards are Employees, Directors and Consultants.

(b) Available Stock Awards. The Plan provides for the grant of the following Stock Awards: (i) Incentive Stock Options; (ii) Nonstatutory Stock Options; (iii) Stock Appreciation Rights; (iv) Restricted Stock Awards; and (v) Restricted Stock Unit Awards.

(c) Purpose. The Company, by means of the Plan, seeks to secure and retain the services of the group of persons eligible to receive Stock Awards as set forth in Section 1(a), to provide incentives for such persons to exert maximum efforts for the success of the Company and any Affiliate, and to provide a means by which such eligible recipients may be given an opportunity to benefit from increases in value of the Common Stock through the granting of Stock Awards.

2. ADMINISTRATION.

(a) Administration by Board. The Board shall administer the Plan unless and until the Board delegates administration of the Plan to a Committee or Committees, as provided in Section 2(c).

(b) Powers of Board. The Board shall have the power, subject to, and within the limitations of, the express provisions of the Plan:

(i) To determine from time to time (A) which of the persons eligible under the Plan shall be granted Stock Awards, (B) when and how each Stock Award shall be granted, (C) what type or combination of types of Stock Award shall be granted, (D) the provisions of each Stock Award granted (which need not be identical), including the time or times when a person shall be permitted to receive cash or Common Stock pursuant to a Stock Award, (E) the number of shares of Common Stock with respect to which a Stock Award shall be granted to each such person, and (F) the Fair Market Value applicable to a Stock Award.

(ii) To construe and interpret the Plan and Stock Awards granted under it, and to establish, amend and revoke rules and regulations for administration of the Plan. The Board, in the exercise of this power, may correct any defect, omission or inconsistency in the Plan or in any Stock Award Agreement, in a manner and to the extent it shall deem necessary or expedient to make the Plan or Stock Award fully effective.

(iii) To settle all controversies regarding the Plan and Stock Awards granted under it.

(iv) To accelerate the time at which a Stock Award may first be exercised or the time during which a Stock Award or any part thereof will vest in accordance with the Plan, notwithstanding the provisions in the Stock Award stating the time at which it may first be exercised or the time during which it will vest.

(v) To suspend or terminate the Plan at any time. Suspension or termination of the Plan shall not impair rights and obligations under any Stock Award granted while the Plan is in effect except with the written consent of the affected Participant.

(vi) To amend the Plan in any respect the Board deems necessary or advisable, including, without limitation, amendments relating to Incentive Stock Options and certain nonqualified deferred compensation under Section 409A of the Code and/or to bring the Plan or Stock Awards granted under the Plan into compliance therewith, subject to the limitations, if any, of applicable law. However, except as provided in Section 9(a) relating to Capitalization Adjustments, to the extent required by applicable law, stockholder approval shall be required for any amendment of the Plan that either (A) materially increases the number of shares of Common Stock available for issuance under the Plan, (B) materially expands the class of individuals eligible to receive Stock Awards under the Plan, (C) materially increases the benefits accruing to Participants under the Plan or materially reduces the price at which shares of Common Stock may be issued or purchased under the Plan, (D) materially extends the term of the Plan, or (E) expands the types of Stock Awards available for issuance under the Plan. Except as provided above, rights under any Stock Award granted before amendment of the Plan shall not be impaired by any amendment of the Plan unless (1) the Company requests the consent of the affected Participant, and (2) such Participant consents in writing.

(vii) To submit any amendment to the Plan for stockholder approval, including, but not limited to, amendments to the Plan intended to satisfy the requirements of Section 422 of the Code regarding Incentive Stock Options.

(viii) To approve forms of Stock Award Agreements for use under the Plan and to amend the terms of any one or more Stock Awards, including, but not limited to, amendments to provide terms more favorable to the Participant than previously provided in the Stock Award Agreement, subject to any specified limits in the Plan that are not subject to Board discretion; *provided, however,* that except with respect to amendments that disqualify or impair the status of an Incentive Stock Option, a Participant's rights under any Stock Award shall not be impaired by any such amendment unless (A) the Company requests the consent of the affected Participant, and (B) such Participant consents in writing. Notwithstanding the foregoing, subject to the limitations of applicable law, if any, the Board may amend the terms of any one or more Stock

Awards without the affected Participant's consent if necessary to maintain the qualified status of the Stock Award as an Incentive Stock Option or to bring the Stock Award into compliance with Section 409A of the Code.

(ix) Generally, to exercise such powers and to perform such acts as the Board deems necessary or expedient to promote the best interests of the Company and that are not in conflict with the provisions of the Plan or Stock Awards.

(x) To adopt such procedures and sub-plans as are necessary or appropriate to permit participation in the Plan by Employees, Directors or Consultants who are foreign nationals or employed outside the United States.

(xi) To effect, at any time and from time to time, with the consent of any adversely affected Participant, (A) the reduction of the exercise price (or strike price) of any outstanding Option or SAR under the Plan, (B) the cancellation of any outstanding Option or SAR under the Plan and the grant in substitution therefore of (1) a new Option or SAR under the Plan or another equity plan of the Company covering the same or a different number of shares of Common Stock, (2) a Restricted Stock Award, (3) a Restricted Stock Unit Award, (4) cash and/or (5) other valuable consideration (as determined by the Board, in its sole discretion), or (C) any other action that is treated as a repricing under generally accepted accounting principles; *provided*, *however*, that no such reduction or cancellation may be effected if it is determined, in the Company's sole discretion, that such reduction or cancellation would result in any such outstanding Option becoming subject to the requirements of Section 409A of the Code.

(c) Delegation to Committee. The Board may delegate some or all of the administration of the Plan to a Committee or Committees. If administration of the Plan is delegated to a Committee, the Committee shall have, in connection with the administration of the Plan, the powers theretofore possessed by the Board that have been delegated to the Committee, including the power to delegate to a subcommittee of the Committee any of the administrative powers the Committee is authorized to exercise (and references in this Plan to the Board shall thereafter be to the Committee or subcommittee), subject, however, to such resolutions, not inconsistent with the provisions of the Plan, as may be adopted from time to time by the Board. The Committee may, at any time, abolish the subcommittee and/or revest in the Committee any powers delegated to the subcommittee. The Board may retain the authority to concurrently administer the Plan with the Committee and may, at any time, revest in the Board some or all of the powers previously delegated.

(d) Delegation to an Officer. The Board may delegate to one or more Officers of the Company the authority to do one or both of the following: (i) designate Officers and Employees of the Company or any of its Subsidiaries to be recipients of Options and Stock Appreciation Rights (and, to the extent permitted by applicable law, other Stock Awards) and the terms thereof, and (ii) determine the number of shares of Common Stock to be subject to such Stock Awards granted to such Officers and Employees; *provided*, *however*, that the Board resolutions regarding such delegation shall specify the total number of shares of Common Stock that may be subject to the Stock Awards granted by such Officer and that such Officer may not grant a Stock Award to himself or herself. Notwithstanding the foregoing, the Board may not delegate authority to an Officer to determine the Fair Market Value pursuant to Section 13(t) below.

(e) Effect of Board's Decision. All determinations, interpretations and constructions made by the Board in good faith shall not be subject to review by any person and shall be final, binding and conclusive on all persons.

3. SHARES SUBJECT TO THE PLAN.

(a) Share Reserve. Subject to Section 9(a) relating to Capitalization Adjustments, the aggregate number of shares of Common Stock that may be issued pursuant to Stock Awards from and after the Effective Date shall not exceed 545,974 shares (the "***Share Reserve***"). Further, if a Stock Award or any portion thereof (i) expires or otherwise terminates without all of the shares covered by such Stock Award having been issued or (ii) is settled in cash (*i.e.*, the Participant receives cash rather than stock), such expiration, termination or settlement shall not reduce (or otherwise offset) the number of shares of Common Stock that may be available for issuance under the Plan. For clarity, the limitation in this Section 3(a) is a limitation in the number of shares of Common Stock that may be issued pursuant to the Plan. Accordingly, this Section 3(a) does not limit the granting of Stock Awards except as provided in Section 7(a).

(b) Reversion of Shares to the Share Reserve. If any shares of Common Stock issued pursuant to a Stock Award are forfeited back to or repurchased by the Company because of the failure to meet a contingency or condition required to vest such shares in the Participant, then the shares that are forfeited or repurchased shall revert to and again become available for issuance under the Plan. Also, any shares reacquired by the Company pursuant to Section 8(g) or as consideration for the exercise of an Option shall again become available for issuance under the Plan. Notwithstanding the provisions of this Section 3(b), any such shares shall not be subsequently issued pursuant to the exercise of Incentive Stock Options.

(c) Incentive Stock Option Limit. Notwithstanding anything to the contrary in this Section 3 and subject to the provisions of Section 9(a) relating to Capitalization Adjustments, the aggregate maximum number of shares of Common Stock that may be issued pursuant to the exercise of Incentive Stock Options shall be 545,974 shares of Common Stock.

(d) Source of Shares. The stock issuable under the Plan shall be shares of authorized but unissued or reacquired Common Stock, including shares repurchased by the Company on the open market or otherwise.

4. ELIGIBILITY.

(a) Eligibility for Specific Stock Awards. Incentive Stock Options may be granted only to employees of the Company or a "parent corporation" or "subsidiary corporation" thereof (as such terms are defined in Sections 424(e) and 424(f) of the Code). Stock Awards other than Incentive Stock Options may be granted to Employees, Directors and Consultants; *provided, however,* that Nonstatutory Stock Options and SARs may not be granted to Employees, Directors and Consultants who are providing Continuous Service only to any "parent" of the Company, as such term is defined in Rule 405, unless the stock underlying such Stock Awards is treated as "service recipient stock" under Section 409A of the Code because the Stock Awards are granted

pursuant to a corporate transaction (such as a spin off transaction) or unless such Stock Awards comply with the distribution requirements of Section 409A of the Code.

(b) Ten Percent Stockholders. A Ten Percent Stockholder shall not be granted an Incentive Stock Option unless the exercise price of such Option is at least 110% of the Fair Market Value on the date of grant and the Option is not exercisable after the expiration of five years from the date of grant.

(c) Consultants. A Consultant shall not be eligible for the grant of a Stock Award if, at the time of grant, either the offer or sale of the Company's securities to such Consultant is not exempt under Rule 701 because of the nature of the services that the Consultant is providing to the Company, because the Consultant is not a natural person, or because of any other provision of Rule 701, unless the Company determines that such grant need not comply with the requirements of Rule 701 and will satisfy another exemption under the Securities Act as well as comply with the securities laws of all other relevant jurisdictions.

5. PROVISIONS RELATING TO OPTIONS AND STOCK APPRECIATION RIGHTS.

Each Option or SAR shall be in such form and shall contain such terms and conditions as the Board shall deem appropriate. All Options shall be separately designated Incentive Stock Options or Nonstatutory Stock Options at the time of grant, and, if certificates are issued, a separate certificate or certificates shall be issued for shares of Common Stock purchased on exercise of each type of Option. If an Option is not specifically designated as an Incentive Stock Option, then the Option shall be a Nonstatutory Stock Option. The provisions of separate Options or SARs need not be identical; *provided, however,* that each Option Agreement or Stock Appreciation Right Agreement shall conform to (through incorporation of provisions hereof by reference in the applicable Stock Award Agreement or otherwise) the substance of each of the following provisions:

(a) Term. Subject to the provisions of Section 4(b) regarding Ten Percent Stockholders, no Option or SAR shall be exercisable after the expiration of ten years from the date of its grant or such shorter period specified in the Stock Award Agreement.

(b) Exercise Price. Subject to the provisions of Section 4(b) regarding Incentive Stock Options granted to Ten Percent Stockholders, the exercise price (or strike price) of each Option or SAR shall be not less than 100% of the Fair Market Value of the Common Stock subject to the Option or SAR on the date the Option or SAR is granted. Notwithstanding the foregoing, an Option or SAR may be granted with an exercise price (or strike price) lower than 100% of the Fair Market Value of the Common Stock subject to the Option or SAR if such Option or SAR is granted pursuant to an assumption of or substitution for another option or stock appreciation right pursuant to a Corporate Transaction and in a manner consistent with the provisions of Sections 409A and 424(a) of the Code (whether or not such stock awards are Incentive Stock Options). Each SAR will be denominated in shares of Common Stock equivalents.

(c) Purchase Price for Options. The purchase price of Common Stock acquired pursuant to the exercise of an Option shall be paid, to the extent permitted by applicable law and

as determined by the Board in its sole discretion, by any combination of the methods of payment set forth below. The Board shall have the authority to grant Options that do not permit all of the following methods of payment (or otherwise restrict the ability to use certain methods) and to grant Options that require the consent of the Company to utilize a particular method of payment. The permitted methods of payment are as follows:

(i) by cash, check, bank draft or money order payable to the Company;

(ii) pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of the stock subject to the Option, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds;

(iii) by delivery to the Company (either by actual delivery or attestation) of shares of Common Stock;

(iv) if the Option is a Nonstatutory Stock Option, by a "net exercise" arrangement pursuant to which the Company will reduce the number of shares of Common Stock issued upon exercise by the largest whole number of shares with a Fair Market Value that does not exceed the aggregate exercise price; *provided, however,* that the Company shall accept a cash or other payment from the Participant to the extent of any remaining balance of the aggregate exercise price not satisfied by such reduction in the number of whole shares to be issued; *provided further*, that shares of Common Stock will no longer be outstanding under an Option and will not be exercisable thereafter to the extent that (A) shares are used to pay the exercise price pursuant to the "net exercise," (B) shares are delivered to the Participant as a result of such exercise, and (C) shares are withheld to satisfy tax withholding obligations;

(v) according to a deferred payment or similar arrangement with the Optionholder; *provided, however,* that interest shall compound at least annually and shall be charged at the minimum rate of interest necessary to avoid (A) the imputation of interest income to the Company and compensation income to the Optionholder under any applicable provisions of the Code, and (B) the classification of the Option as a liability for financial accounting purposes; or

(vi) in any other form of legal consideration that may be acceptable to the Board.

(d) Exercise and Payment of a SAR. To exercise any outstanding SAR, the Participant must provide written notice of exercise to the Company in compliance with the provisions of the Stock Appreciation Right Agreement evidencing such SAR. The appreciation distribution payable on the exercise of a SAR will be not greater than an amount equal to the excess of (A) the aggregate Fair Market Value (on the date of the exercise of the SAR) of a number of shares of Common Stock equal to the number of Common Stock equivalents in which the Participant is vested under such SAR, and with respect to which the Participant is exercising the SAR on such date, over (B) the strike price that will be determined by the Board at the time of grant of the SAR. The appreciation distribution in respect to a SAR may be paid in Common Stock, in cash, in any combination of the two or in any other form of consideration, as

determined by the Board and contained in the Stock Appreciation Right Agreement evidencing such SAR.

(e) Transferability of Options and SARs. Except as set forth in this Section 5(e) or as otherwise determined by the Board under terms that are not prohibited by applicable tax and securities laws, Options and SARs shall not be transferable. The Board may, in its sole discretion, impose additional limitations on the transferability of Options and SARs in the applicable Stock Award Agreement.

(i) Restrictions on Transfer. An Option or SAR shall not be transferable except by will or by the laws of descent and distribution and shall be exercisable during the lifetime of the Participant only by the Participant; *provided, however,* that the Board may, in its sole discretion, permit transfer of the Option or SAR and in a manner that is not prohibited by applicable tax and securities laws (including but not limited to Rule 701) upon the Participant's request. Except as explicitly provided herein, neither an Option nor a SAR may be transferred for consideration.

(ii) Domestic Relations Orders. Upon receiving written permission from the Board or its duly authorized designee, an Option or SAR may be transferred pursuant to a domestic relations order; *provided, however,* that if an Option is an Incentive Stock Option, such Option may be deemed to be a Nonstatutory Stock Option as a result of such transfer.

(iii) Beneficiary Designation. Upon receiving written permission from the Board or its duly authorized designee, the Participant may, by delivering written notice to the Company, in a form provided by or otherwise satisfactory to the Company, designate a third party who, in the event of the death of the Participant, shall thereafter be the beneficiary of the Option or SAR with the right to exercise the Option or SAR and receive the Common Stock or other consideration resulting from such exercise. In the absence of such a designation, the executor or administrator of the Participant's estate shall be entitled to exercise the Option or SAR and receive the Common Stock or other consideration resulting from such exercise.

(f) Vesting Generally. The total number of shares of Common Stock subject to an Option or SAR may vest and therefore become exercisable in periodic installments that may or may not be equal. The Option or SAR may be subject to such other terms and conditions on the time or times when it may or may not be exercised (which may be based on the satisfaction of performance goals or other criteria) as the Board may deem appropriate. The vesting provisions of individual Options or SARs may vary. The provisions of this Section 5(f) are subject to any Option or SAR provisions governing the minimum number of shares of Common Stock as to which an Option or SAR may be exercised.

(g) Termination of Continuous Service. Except as otherwise provided in the applicable Stock Award Agreement or other agreement between the Participant and the Company, in the event that a Participant's Continuous Service terminates (other than for Cause or upon the Participant's death or Disability), the Participant may exercise his or her Option or SAR (to the extent that the Participant was entitled to exercise such Stock Award as of the date of termination of Continuous Service) but only within such period of time ending on the earlier of (i) the date three months following the termination of the Participant's Continuous Service (or

such longer or shorter period specified in the applicable Stock Award Agreement, which period shall not be less than 30 days if necessary to comply with applicable laws unless such termination is for Cause) or (ii) the expiration of the term of the Option or SAR as set forth in the Stock Award Agreement. If, after termination of Continuous Service, the Participant does not exercise his or her Option or SAR within the time specified herein or in the Stock Award Agreement (as applicable), the Option or SAR shall terminate.

(h) Extension of Termination Date. Except as otherwise provided in the applicable Stock Award Agreement or other agreement between the Participant and the Company, if the exercise of the Option or SAR following the termination of the Participant's Continuous Service (other than for Cause or upon the Participant's death or Disability) would be prohibited at any time solely because the issuance of shares of Common Stock would violate the registration requirements under the Securities Act, then the Option or SAR shall terminate on the earlier of (i) the expiration of a total period of three months (that need not be consecutive) after the termination of the Participant's Continuous Service during which the exercise of the Option or SAR would not be in violation of such registration requirements, or (ii) the expiration of the term of the Option or SAR as set forth in the applicable Stock Award Agreement. In addition, unless otherwise provided in a Participant's Stock Award Agreement, if the immediate sale of any Common Stock received upon exercise of an Option or SAR following the termination of the Participant's Continuous Service (other than for Cause) would violate the Company's insider trading policy, then the Option or SAR shall terminate on the earlier of (i) the expiration of a period equal to the applicable post-termination exercise period after the termination of the Participant's Continuous Service during which the sale of Common Stock received upon exercise of the Option or SAR would not be in-violation of the Company's insider trading policy, or (ii) the expiration of the term of the Option or SAR as set forth in the applicable Stock Award Agreement.

(i) Disability of Participant. Except as otherwise provided in the applicable Stock Award Agreement or other agreement between the Participant and the Company, in the event that a Participant's Continuous Service terminates as a result of the Participant's Disability, the Participant may exercise his or her Option or SAR (to the extent that the Participant was entitled to exercise such Option or SAR as of the date of termination of Continuous Service), but only within such period of time ending on the earlier of (i) the date 12 months following such termination of Continuous Service (or such longer or shorter period specified in the Stock Award Agreement, which period shall not be less than six months if necessary to comply with applicable laws), or (ii) the expiration of the term of the Option or SAR as set forth in the Stock Award Agreement. If, after termination of Continuous Service, the Participant does not exercise his or her Option or SAR within the time specified herein or in the Stock Award Agreement (as applicable), the Option or SAR shall terminate.

(j) Death of Participant. Except as otherwise provided in the applicable Stock Award Agreement or other agreement between the Participant and the Company, in the event that (i) a Participant's Continuous Service terminates as a result of the Participant's death, or (ii) the Participant dies within the period (if any) specified in the Stock Award Agreement after the termination of the Participant's Continuous Service for a reason other than death, then the Option or SAR may be exercised (to the extent the Participant was entitled to exercise such Option or SAR as of the date of death) by the Participant's estate or by a person who acquired

the right to exercise the Option or SAR by bequest or inheritance or by a person designated to exercise the Option or SAR upon the Participant's death, but only within the period ending on the earlier of (i) the date 18 months following the date of death (or such longer or shorter period specified in the Stock Award Agreement, which period shall not be less than six months if necessary to comply with applicable laws), or (ii) the expiration of the term of such Option or SAR as set forth in the Stock Award Agreement. If, after the Participant's death, the Option or SAR is not exercised within the time specified herein or in the Stock Award Agreement (as applicable), the Option or SAR shall terminate.

(k) Termination for Cause. Except as explicitly provided otherwise in a Participant's Stock Award Agreement, if a Participant's Continuous Service is terminated for Cause, the Option or SAR shall terminate upon the termination date of such Participant's Continuous Service, and the Participant shall be prohibited from exercising his or her Option or SAR from and after the time of such termination of Continuous Service.

(l) Non-Exempt Employees. No Option or SAR granted to an Employee who is a non-exempt employee for purposes of the Fair Labor Standards Act of 1938, as amended, shall be first exercisable for any shares of Common Stock until at least six months following the date of grant of the Option or SAR. Notwithstanding the foregoing, consistent with the provisions of the Worker Economic Opportunity Act, (i) in the event of the Participant's death or Disability, (ii) upon a Corporate Transaction in which such Option or SAR is not assumed, continued or substituted, (iii) upon a Change in Control in which the vesting of such Options or SARs accelerates, or (iv) upon the Participant's retirement (as such term is defined for purposes of the Fair Labor Standards Act of 1938), the vested portion of any Options and SARs may be exercised earlier than six months following the date of grant. The foregoing provision is intended to operate so that any income derived by a non-exempt employee in connection with the exercise or vesting of an Option or SAR will be exempt from his or her regular rate of pay.

(m) Early Exercise of Options. An Option may, but need not, include a provision whereby the Optionholder may elect at any time before the Optionholder's Continuous Service terminates to exercise the Option as to any part or all of the shares of Common Stock subject to the Option prior to the full vesting of the Option. Subject to the "Repurchase Limitation" in Section 8(k), any unvested shares of Common Stock so purchased may be subject to a repurchase right in favor of the Company or to any other restriction the Board determines to be appropriate. Provided that the "Repurchase Limitation" in Section 8(k) is not violated, the Company shall not be required to exercise its repurchase right until at least six months (or such longer or shorter period of time required to avoid classification of the Option as a liability for financial accounting purposes) have elapsed following exercise of the Option unless the Board otherwise specifically provides in the Option Agreement.

(n) Right of Repurchase. Subject to the "Repurchase Limitation" in Section 8(k), an Option or SAR may include a provision whereby the Company may elect to repurchase all or any part of the vested shares of Common Stock acquired by the Participant pursuant to the exercise of the Option or SAR.

(o) Right of First Refusal. An Option or SAR may include a provision whereby the Company may elect to exercise a right of first refusal following receipt of notice from the

Participant of the intent to transfer all or any part of the shares of Common Stock received upon the exercise of the Option or SAR. Such right of first refusal shall be subject to the "Repurchase Limitation" in Section 8(k). Except as expressly provided in this Section 5(o) or in the Stock Award Agreement, such right of first refusal shall otherwise comply with any applicable provisions of the bylaws of the Company.

6. PROVISIONS OF RESTRICTED STOCK AWARDS AND RESTRICTED STOCK UNITS.

(a) Restricted Stock Awards. Each Restricted Stock Award Agreement shall be in such form and shall contain such terms and conditions as the Board shall deem appropriate. To the extent consistent with the Company's bylaws, at the Board's election, shares of Common Stock may be (A) held in book entry form subject to the Company's instructions until any restrictions relating to the Restricted Stock Award lapse, or (B) evidenced by a certificate, which certificate shall be held in such form and manner as determined by the Board. The terms and conditions of Restricted Stock Award Agreements may change from time to time, and the terms and conditions of separate Restricted Stock Award Agreements need not be identical; *provided, however,* that each Restricted Stock Award Agreement shall conform to (through incorporation of the provisions hereof by reference in the agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. A Restricted Stock Award may be awarded in consideration for (A) cash or cash equivalents, (B) past or future services actually or to be rendered to the Company or an Affiliate, or (C) any other form of legal consideration that may be acceptable to the Board in its sole discretion and permissible under applicable law.

(ii) Vesting. Subject to the "Repurchase Limitation" in Section 8(k), shares of Common Stock awarded under the Restricted Stock Award Agreement may be subject to forfeiture to the Company in accordance with a vesting schedule to be determined by the Board.

(iii) Termination of Participant's Continuous Service. If a Participant's Continuous Service terminates, the Company may receive through a forfeiture condition or a repurchase right, any or all of the shares of Common Stock held by the Participant that have not vested as of the date of termination of Continuous Service under the terms of the Restricted Stock Award Agreement.

(iv) Transferability. Rights to acquire shares of Common Stock under the Restricted Stock Award Agreement shall be transferable by the Participant only upon such terms and conditions as are set forth in the Restricted Stock Award Agreement, as the Board shall determine in its sole discretion, so long as Common Stock awarded under the Restricted Stock Award Agreement remains subject to the terms of the Restricted Stock Award Agreement.

(v) Dividends. A Restricted Stock Award Agreement may provide that any dividends paid on Restricted Stock will be subject to the same vesting and forfeiture restrictions as apply to the shares subject to the Restricted Stock Award to which they relate.

(b) Restricted Stock Unit Awards. Each Restricted Stock Unit Award Agreement shall be in such form and shall contain such terms and conditions as the Board shall deem appropriate. The terms and conditions of Restricted Stock Unit Award Agreements may change

from time to time, and the terms and conditions of separate Restricted Stock Unit Award Agreements need not be identical, *provided, however,* that each Restricted Stock Unit Award Agreement shall conform to (through incorporation of the provisions hereof by reference in the Agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. At the time of grant of a Restricted Stock Unit Award, the Board will determine the consideration, if any, to be paid by the Participant upon delivery of each share of Common Stock subject to the Restricted Stock Unit Award. The consideration to be paid (if any) by the Participant for each share of Common Stock subject to a Restricted Stock Unit Award may be paid in any form of legal consideration that may be acceptable to the Board in its sole discretion and permissible under applicable law.

(ii) Vesting. At the time of the grant of a Restricted Stock Unit Award, the Board may impose such restrictions or conditions to the vesting of the Restricted Stock Unit Award as it, in its sole discretion, deems appropriate.

(iii) Payment. A Restricted Stock Unit Award may be settled by the delivery of shares of Common Stock, their cash equivalent, any combination thereof or in any other form of consideration, as determined by the Board and contained in the Restricted Stock Unit Award Agreement.

(iv) Additional Restrictions. At the time of the grant of a Restricted Stock Unit Award, the Board, as it deems appropriate, may impose such restrictions or conditions that delay the delivery of the shares of Common Stock (or their cash equivalent) subject to a Restricted Stock Unit Award to a time after the vesting of such Restricted Stock Unit Award.

(v) Dividend Equivalents. Dividend equivalents may be credited in respect of shares of Common Stock covered by a Restricted Stock Unit Award, as determined by the Board and contained in the Restricted Stock Unit Award Agreement. At the sole discretion of the Board, such dividend equivalents may be converted into additional shares of Common Stock covered by the Restricted Stock Unit Award in such manner as determined by the Board. Any additional shares covered by the Restricted Stock Unit Award credited by reason of such dividend equivalents will be subject to all the terms and conditions of the underlying Restricted Stock Unit Award Agreement to which they relate.

(vi) Termination of Participant's Continuous Service. Except as otherwise provided in the applicable Restricted Stock Unit Award Agreement, such portion of the Restricted Stock Unit Award that has not vested will be forfeited upon the Participant's termination of Continuous Service.

(vii) Compliance with Section 409A of the Code. Notwithstanding anything to the contrary set forth herein, any Restricted Stock Unit Award granted under the Plan that is not exempt from the requirements of Section 409A of the Code shall contain such provisions so that such Restricted Stock Unit Award will comply with the requirements of Section 409A of the Code. Such restrictions, if any, shall be determined by the Board and contained in the Restricted Stock Unit Award Agreement evidencing such Restricted Stock Unit Award. For example, such restrictions may include, without limitation, a requirement that any Common Stock that is to be

issued in a year following the year in which the Restricted Stock Unit Award vests must be issued in accordance with a fixed pre-determined schedule.

7. COVENANTS OF THE COMPANY.

(a) Availability of Shares. During the terms of the Stock Awards, the Company shall keep available at all times the number of shares of Common Stock reasonably required to satisfy such Stock Awards.

(b) Securities Law Compliance. The Company shall seek to obtain from each regulatory commission or agency having jurisdiction over the Plan such authority as may be required to grant Stock Awards and to issue and sell shares of Common Stock upon exercise of the Stock Awards; *provided, however,* that this undertaking shall not require the Company to register under the Securities Act the Plan, any Stock Award or any Common Stock issued or issuable pursuant to any such Stock Award. If, after reasonable efforts, the Company is unable to obtain from any such regulatory commission or agency the authority that counsel for the Company deems necessary for the lawful issuance and sale of Common Stock under the Plan, the Company shall be relieved from any liability for failure to issue and sell Common Stock upon exercise of such Stock Awards unless and until such authority is obtained. A Participant shall not be eligible for the grant of a Stock Award or the subsequent issuance of Common Stock pursuant to the Stock Award if such grant or issuance would be in violation of any applicable securities law.

(c) No Obligation to Notify or Minimize Taxes. The Company shall have no duty or obligation to any Participant to advise such holder as to the time or manner of exercising such Stock Award. Furthermore, the Company shall have no duty or obligation to warn or otherwise advise such holder of a pending termination or expiration of a Stock Award or a possible period in which the Stock Award may not be exercised. The Company has no duty or obligation to minimize the tax consequences of a Stock Award to the holder of such Stock Award.

8. MISCELLANEOUS.

(a) Use of Proceeds from Sales of Common Stock. Proceeds from the sale of shares of Common Stock pursuant to Stock Awards shall constitute general funds of the Company.

(b) Corporate Action Constituting Grant of Stock Awards. Corporate action constituting a grant by the Company of a Stock Award to any Participant shall be deemed completed as of the date of such corporate action, unless otherwise determined by the Board, regardless of when the instrument, certificate, or letter evidencing the Stock Award is communicated to, or actually received or accepted by, the Participant.

(c) Stockholder Rights. No Participant shall be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares of Common Stock subject to such Stock Award unless and until (i) such Participant has satisfied all requirements for the exercise of the Stock Award, or the issuance of shares thereunder, pursuant to its terms, and (ii) the issuance of the Common Stock pursuant to the Stock Award has been entered into the books and records of the Company.

(d) No Employment or Other Service Rights. Nothing in the Plan, any Stock Award Agreement or any other instrument executed thereunder or in connection with any Stock Award granted pursuant thereto shall confer upon any Participant any right to continue to serve the Company or an Affiliate in the capacity in effect at the time the Stock Award was granted or shall affect the right, of the Company or an Affiliate to terminate (i) the employment of an Employee with or without notice and with or without cause, (ii) the service of a Consultant pursuant to the terms of such Consultant's agreement with the Company or an Affiliate, or (iii) the service of a Director pursuant to the bylaws of the Company or an Affiliate, and any applicable provisions of the corporate law of the state in which the Company or the Affiliate is incorporated, as the case may be.

(e) Incentive Stock Option $100,000 Limitation. To the extent that the aggregate Fair Market Value (determined at the time of grant) of Common Stock with respect to which Incentive Stock Options are exercisable for the first time by any Optionholder during any calendar year (under all plans of the Company and any Affiliates) exceeds $100,000, the Options or portions thereof that exceed such limit (according to the order in which they were granted) shall be treated as Nonstatutory Stock Options, notwithstanding any contrary provision of the applicable Option Agreement.

(f) Investment Assurances. The Company may require a Participant, as a condition of exercising or acquiring Common Stock under any Stock Award, (i) to give written assurances satisfactory to the Company as to the Participant's knowledge and experience in financial and business matters and/or to employ a purchaser representative reasonably satisfactory to the Company who is knowledgeable and experienced in financial and business matters and that he or she is capable of evaluating, alone or together with the purchaser representative, the merits and risks of exercising the Stock Award, and (ii) to give written assurances satisfactory to the Company stating that the Participant is acquiring Common Stock subject to the Stock Award for the Participant's own account and not with any present intention of selling or otherwise distributing the Common Stock. The foregoing requirements, and any assurances given pursuant to such requirements, shall be inoperative if (x) the issuance of the shares upon the exercise or acquisition of Common Stock under the Stock Award has been registered under a then currently effective registration statement under the Securities Act, or (y) as to any particular requirement, a determination is made by counsel for the Company that such requirement need not be met in the circumstances under the then applicable securities laws. The Company may, upon advice of counsel to the Company, place legends on stock certificates issued under the Plan as such counsel deems necessary or appropriate in order to comply with applicable securities laws, including, but not limited to, legends restricting the transfer of the Common Stock.

(g) Withholding Obligations. Unless prohibited by the terms of a Stock Award Agreement, the Company may, in its sole discretion, satisfy any federal, state or local tax withholding obligation relating to a Stock Award by any of the following means (in addition to the Company's right to withhold from any compensation paid to the Participant by the Company) or by a combination of such means: (i) causing the Participant to tender a cash payment; (ii) withholding shares of Common Stock from the shares of Common Stock issued or otherwise issuable to the Participant in connection with the Stock Award; *provided, however,* that no shares of Common Stock are withheld with a value exceeding the minimum amount of tax required to be withheld by law (or such lesser amount as may be necessary to avoid classification of the

Stock Award as a liability for financial accounting purposes); (iii) withholding payment from any amounts otherwise payable to the Participant; (iv) withholding cash from a Stock Award settled in cash; or (v) by such other method as may be set forth in the Stock Award Agreement.

(h) Electronic Delivery. Any reference herein to a "written" agreement or document shall include any agreement or document delivered electronically or posted on the Company's intranet.

(i) Deferrals. To the extent permitted by applicable law, the Board, in its sole discretion, may determine that the delivery of Common Stock or the payment of cash, upon the exercise, vesting or settlement of all or a portion of any Stock Award may be deferred and may establish programs and procedures for deferral elections to be made by Participants. Deferrals by Participants will be made in accordance with Section 409A of the Code. Consistent with Section 409A of the Code, the Board may provide for distributions while a Participant is still an employee. The Board is authorized to make deferrals of Stock Awards and determine when, and in what annual percentages, Participants may receive payments, including lump sum payments, following the Participant's termination of employment or retirement, and implement such other terms and conditions consistent with the provisions of the Plan and in accordance with applicable law.

(j) Compliance with Section 409A. To the extent that the Board determines that any Stock Award granted hereunder is subject to Section 409A of the Code, the Stock Award Agreement evidencing such Stock Award shall incorporate the terms and conditions necessary to avoid the consequences specified in Section 409A(a)(1) of the Code. To the extent applicable, the Plan and Stock Award Agreements shall be interpreted in accordance with Section 409A of the Code.

(k) Repurchase Limitation. The terms of any repurchase right shall be specified in the Stock Award Agreement. The repurchase price for vested shares of Common Stock shall be the Fair Market Value of the shares of Common Stock on the date of repurchase. The repurchase price for unvested shares of Common Stock shall be the lower of (i) the Fair Market Value of the shares of Common Stock on the date of repurchase or (ii) their original purchase price. However, the Company shall not exercise its repurchase right until at least six months (or such longer or shorter period of time necessary to avoid classification of the Stock Award as a liability for financial accounting purposes) have elapsed following delivery of shares of Common Stock subject to the Stock Award, unless otherwise specifically provided by the Board.

9. ADJUSTMENTS UPON CHANGES IN COMMON STOCK; OTHER CORPORATE EVENTS.

(a) Capitalization Adjustments. In the event of a Capitalization Adjustment, the Board shall appropriately and proportionately adjust: (i) the class(es) and maximum number of securities subject to the Plan pursuant to Section 3(a); (ii) the class(es) and maximum number of securities that may be issued pursuant to the exercise of Incentive Stock Options pursuant to Section 3(c); and (iii) the class(es) and number of securities and price per share of stock subject to outstanding Stock Awards. The Board shall make such adjustments, and its determination shall be final, binding and conclusive.

(b) Dissolution or Liquidation. Except as otherwise provided in the Stock Award Agreement, in the event of a dissolution or liquidation of the Company, all outstanding Stock Awards (other than Stock Awards consisting of vested and outstanding shares of Common Stock not subject to a forfeiture condition or the Company's right of repurchase) shall terminate immediately prior to the completion of such dissolution or liquidation, and the shares of Common Stock subject to the Company's repurchase rights or subject to a forfeiture condition may be repurchased or reacquired by the Company notwithstanding the fact that the holder of such Stock Award is providing Continuous Service.

(c) Corporate Transaction. The following provisions shall apply to Stock Awards in the event of a Corporate Transaction unless otherwise provided in the instrument evidencing the Stock Award or any other written agreement between the Company or any Affiliate and the holder of the Stock Award or unless otherwise expressly provided by the Board at the time of grant of a Stock Award. Except as otherwise stated in the Stock Award Agreement, in the event of a Corporate Transaction, then, notwithstanding any other provision of the Plan, the Board may take one or more of the following actions with respect to Stock Awards, contingent upon the closing or completion of the Corporate Transaction:

(i) arrange for the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) to assume or continue all or any portion of the Stock Award or to substitute a similar stock award for all or any portion of the Stock Award (including, but not limited to, an award to acquire the same consideration paid to the stockholders of the Company pursuant to the Corporate Transaction);

(ii) arrange for the assignment of any reacquisition or repurchase rights held by the Company in respect of Common Stock issued pursuant to the Stock Award to the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company);

(iii) accelerate the vesting, in whole or in part, of the Stock Award (and, if applicable, the time at which the Stock Award may be exercised), with such Stock Award terminating if not exercised (if applicable) at or prior to the effective time of the Corporate Transaction; *provided, however,* that the Board may require Participants to complete and deliver to the Company a notice of exercise before the effective date of a Corporate Transaction, which is contingent upon the effectiveness of such Corporate Transaction;

(iv) arrange for the lapse of any reacquisition or repurchase rights held by the Company with respect to the Stock Award;

(v) cancel or arrange for the cancellation of all or any portion of the Stock Award, to the extent not vested or not exercised prior to the effective time of the Corporate Transaction, in exchange for such cash consideration, if any, as the Board, in its sole discretion, may consider appropriate; and

(vi) make a payment, in such form as may be determined by the Board equal to the excess, if any, of (A) the value of the property the holder of the Stock Award would have received upon the exercise of the Stock Award, over (B) any exercise price payable by such holder in connection with such exercise. For clarity, this payment may be zero ($0) if the value of the property is equal to or less than the exercise price. Payments under this provision may be delayed to the same extent that payment of consideration to the holders of the Company's Common Stock in connection with the Corporate Transaction is delayed as a result of escrows, earn outs, holdbacks or any other contingencies.

The Board need not take the same action with respect to all Stock Awards or with respect to all Participants. The Board may take different actions with respect to the vested and unvested portions of a Stock Award.

(d) Change in Control. A Stock Award may be subject to additional acceleration of vesting and exercisability upon or after a Change in Control as may be provided in the Stock Award Agreement for such Stock Award or as may be provided in any other written agreement between the Company or any Affiliate and the Participant, but in the absence of such provision, no such acceleration shall occur.

10. TERMINATION OR SUSPENSION OF THE PLAN.

(a) Plan Term. The Board may suspend or terminate the Plan at any time. Unless sooner terminated by the Board pursuant to Section 2, the Plan shall automatically terminate on the day before the tenth anniversary of the earlier of (i) the date the Plan is adopted by the Board, or (ii) the date the Plan is approved by the stockholders of the Company. No Stock Awards may be granted under the Plan while the Plan is suspended or after it is terminated.

(b) No Impairment of Rights. Suspension or termination of the Plan shall not impair rights and obligations under any Stock Award granted while the Plan is in effect except with the written consent of the affected Participant.

11. EFFECTIVE DATE OF PLAN.

This Plan shall become effective on the Effective Date.

12. CHOICE OF LAW.

The law of the State of Delaware shall govern all questions concerning the construction, validity and interpretation of this Plan, without regard to that state's conflict of laws rules.

13. DEFINITIONS. As used in the Plan, the following definitions shall apply to the capitalized terms indicated below:

(a) "***Affiliate***" means, at the time of determination, any "parent" or "majority-owned subsidiary" of the Company, as such terms are defined in Rule 405. The Board shall have the authority to determine the time or times at which "parent" or "majority-owned subsidiary" status is determined within the foregoing definition.

(b) "***Board***" means the Board of Directors of the Company.

(c) "***Capitalization Adjustment***" means any change that is made in, or other events that occur with respect to, the Common Stock subject to the Plan or subject to any Stock Award after the Effective Date without the receipt of consideration by the Company (through merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, stock split, reverse stock split liquidating dividend, combination of shares, exchange of shares, change in corporate structure, or any similar equity restructuring transaction, as that term is used in Financial Accounting Standards Board Accounting Standards Codification Topic 718. Notwithstanding the foregoing, the conversion of any convertible securities of the Company shall not be treated as a Capitalization Adjustment.

(d) "***Cause***" shall have the meaning ascribed to such term in any written agreement between the Participant and the Company defining such term and, in the absence of such agreement, such term means with respect to a Participant, the occurrence of any of the following events: (i) such Participant's commission of any felony or any crime involving fraud, dishonesty or moral turpitude under the laws of the United States or any state thereof; (ii) such Participant's attempted commission of, or participation in, a fraud or act of dishonesty against the Company; (iii) such Participant's intentional, material violation of any contract or agreement between the Participant and the Company or of any statutory duty owed to the Company; (iv) such Participant's unauthorized use or disclosure of the Company's confidential information or trade secrets; or (v) such Participant's gross misconduct. The determination that a termination of the Participant's Continuous Service is either for Cause or without Cause shall be made by the Company in its sole discretion. Any determination by the Company that the Continuous Service of a Participant was terminated with or without Cause for the purposes of outstanding Stock Awards held by such Participant shall have no effect upon any determination of the rights or obligations of the Company or such Participant for any other purpose.

(e) "***Change in Control***" means the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) any Exchange Act Person becomes the Owner, directly or indirectly, of securities of the Company representing more than 50% of the combined voting power of the Company's then outstanding securities other than by virtue of a merger, consolidation or similar transaction. Notwithstanding the foregoing, a Change in Control shall not be deemed to occur (A) on account of the acquisition of securities of the Company directly from the Company, (B) on account of the acquisition of securities of the Company by an investor, any affiliate thereof or any other Exchange Act Person that acquires the Company's securities in a transaction or series of related transactions the primary purpose of which is to obtain financing for the Company through the issuance of equity securities or (C) solely because the level of Ownership held by any Exchange Act Person (the "***Subject Person***") exceeds the designated percentage threshold of the outstanding voting securities as a result of a repurchase or other acquisition of voting securities by the Company reducing the number of shares outstanding, provided that if a Change in Control would occur (but for the operation of this sentence) as a result of the acquisition of voting securities by the Company, and after such share acquisition, the Subject Person becomes the Owner of any additional voting securities that, assuming the repurchase or

other acquisition had not occurred, increases the percentage of the then outstanding voting securities Owned by the Subject Person over the designated percentage threshold, then a Change in Control shall be deemed to occur;

(ii) there is consummated a merger, consolidation or similar transaction involving (directly or indirectly) the Company and, immediately after the consummation of such merger, consolidation or similar transaction, the stockholders of the Company immediately prior thereto do not Own, directly or indirectly, either (A) outstanding voting securities representing more than 50% of the combined outstanding voting power of the surviving Entity in such merger, consolidation or similar transaction or (B) more than 50% of the combined outstanding voting power of the parent of the surviving Entity in such merger, consolidation or similar transaction, in each case in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such transaction; or

(iii) there is consummated a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries, other than a sale, lease, license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries to an Entity, more than 50% of the combined voting power of the voting securities of which are Owned by stockholders of the Company in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such sale, lease, license or other disposition.

Notwithstanding the foregoing definition or any other provision of this Plan, (A) the term Change in Control shall not include a sale of assets, merger or other transaction effected exclusively for the purpose of changing the domicile of the Company, and (B) the definition of Change in Control (or any analogous term) in an individual written agreement between the Company or any Affiliate and the Participant shall supersede the foregoing definition with respect to Stock Awards subject to such agreement; *provided, however,* that if no definition of Change in Control or any analogous term is set forth in such an individual written agreement, the foregoing definition shall apply.

(f) "***Code***" means the Internal Revenue Code of 1986, as amended, including any applicable regulations and guidance thereunder.

(g) "***Committee***" means a committee of one or more Directors to whom authority has been delegated by the Board in accordance with Section 2(c).

(h) "***Common Stock***" means the common stock of the Company.

(i) "***Company***" means Poseida Therapeutics, Inc., a Delaware limited liability company.

(j) "***Consultant***" means any person, including an advisor, who is (i) engaged by the Company or an Affiliate to render consulting or advisory services and is compensated for such services, or (ii) serving as a member of the board of directors of an Affiliate and is compensated for such services. However, service solely as a Director, or payment of a fee for such service, shall not cause a Director to be considered a "Consultant" for purposes of the Plan.

(k) "***Continuous Service***" means that the Participant's service with the Company or an Affiliate, whether as an Employee, Director or Consultant, is not interrupted or terminated. A change in the capacity in which the Participant renders service to the Company or an Affiliate as an Employee, Director, or Consultant or a change-in the Entity for which the Participant renders such service, provided that there is no interruption or termination of the Participant's service with the Company or an Affiliate, shall not terminate a Participant's Continuous Service; *provided, however,* that if the Entity for which a Participant is rendering service ceases to qualify as an Affiliate, as determined by the Board in its sole discretion, such Participant's Continuous Service shall be considered to have terminated on the date such Entity ceases to qualify as an Affiliate. For example, a change in status from an employee of the Company to a consultant of an Affiliate or to a Director shall not constitute an interruption of Continuous Service. To the extent permitted by law, the Board or the chief executive officer of the Company, in that party's sole discretion, may determine whether Continuous Service shall be considered interrupted in the case of (i) any leave of absence approved by the Board or chief executive officer, including sick leave, military leave or any other personal leave, or (ii) transfers between the Company, an Affiliate, or their successors. Notwithstanding the foregoing, a leave of absence shall be treated as Continuous Service for purposes of vesting in a Stock Award only to such extent as may be provided in the Company's leave of absence policy, in the written terms of any leave of absence agreement or policy applicable to the Participant, or as otherwise required by law.

(l) "***Corporate Transaction***" means the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) the consummation of a sale or other disposition of all or substantially all, as determined by the Board in its sole discretion, of the consolidated assets of the Company and its Subsidiaries;

(ii) the consummation of a sale or other disposition of at least 50% of the outstanding securities of the Company;

(iii) the consummation of a merger, consolidation or similar transaction following which the Company is not the surviving corporation; or

(iv) the consummation of a merger, consolidation or similar transaction following which the Company is the surviving corporation but the shares of Common Stock outstanding immediately preceding the merger, consolidation or similar transaction are converted or exchanged by virtue of the merger, consolidation or similar transaction into other property, whether in the form of securities, cash or otherwise.

(m) "***Director***" means a member of the Board.

(n) "***Disability***" means, with respect to a Participant, the inability of a Participant to engage in any substantially gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or which has lasted or can be expected to last for a continuous period of not less than 12 months as provided in Sections 22(e)(3) and 409A(a)(2)(c)(i) of the Code and shall be determined by the Board on the basis of such medical evidence as the Board deems warranted under the circumstances.

(o) "***Effective Date***" means the effective date of this Plan, which is the earlier of (i) the date that this Plan is first approved by the Company's stockholders, or (ii) the date this Plan is adopted by the Board.

(p) "***Employee***" means any person employed by the Company or an Affiliate. However, service solely as a Director, or payment of a fee for such services, shall not cause a Director to be considered an "Employee" for purposes of the Plan.

(q) "***Entity***" means a corporation, partnership, limited liability company or other entity.

(r) "***Exchange Act***" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

(s) "***Exchange Act Person***" means any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act), except that "Exchange Act Person" shall not include (i) the Company or any Subsidiary of the Company, (ii) any employee benefit plan of the Company or any Subsidiary of the Company or any trustee or other fiduciary holding securities under an employee benefit plan of the Company or any Subsidiary of the Company, (iii) an underwriter temporarily holding securities pursuant to an offering of such securities, (iv) an Entity Owned, directly or indirectly, by the stockholders of the Company in substantially the same proportions as their Ownership of stock of the Company; or (v) any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act) that, as of the Effective Date, is the Owner, directly or indirectly, of securities of the Company representing more than 50% of the combined voting power of the Company's then outstanding securities.

(t) "***Fair Market Value***" means, as of any date, the value of the Common Stock determined by the Board in compliance with Section 409A of the Code or, in the case of an Incentive Stock Option, in compliance with Section 422 of the Code.

(u) "***Incentive Stock Option***" means an option that qualifies as an "incentive stock option" within the meaning of Section 422 of the Code and the regulations promulgated thereunder.

(v) "***Nonstatutory Stock Option***" means an Option that does not qualify as an Incentive Stock Option.

(w) "***Officer***" means any person designated by the Company as an officer.

(x) "***Option***" means an Incentive Stock Option or a Nonstatutory Stock Option to purchase shares of Common Stock granted pursuant to the Plan.

(y) "***Option Agreement***" means a written agreement between the Company and an Optionholder evidencing the terms and conditions of an Option grant. Each Option Agreement shall be subject to the terms and conditions of the Plan.

(z) "***Optionholder***" means a person to whom an Option is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Option.

(aa) "***Own***," "***Owned***," "***Owner***," "***Ownership***" A person or Entity shall be deemed to "Own," to have "Owned," to be the "Owner" of, or to have acquired "Ownership" of securities if such person or Entity, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has or shares voting power, which includes the power to vote or to direct the voting, with respect to such securities.

(bb) "***Participant***" means a person to whom a Stock Award is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Stock Award.

(cc) "***Plan***" means this Poseida Therapeutics, Inc. 2015 Equity Incentive Plan.

(dd) "***Restricted Stock Award***" means an award of shares of Common Stock which is granted pursuant to the terms and conditions of Section 6(a).

(ee) "***Restricted Stock Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Award evidencing the terms and conditions of a Restricted Stock Award. Each Restricted Stock Award Agreement shall be subject to the terms and conditions of the Plan.

(ff) "***Restricted Stock Unit Award***" means a right to receive shares of Common Stock which is granted pursuant to the terms and conditions of Section 6(b).

(gg) "***Restricted Stock Unit Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Unit Award evidencing the terms and conditions of a Restricted Stock Unit Award grant. Each Restricted Stock Unit Award Agreement shall be subject to the terms and conditions of the Plan.

(hh) "***Rule 405***" means Rule 405 promulgated under the Securities Act.

(ii) "***Rule 701***" means Rule 701 promulgated under the Securities Act.

(jj) "***Securities Act***" means the Securities Act of 1933, as amended.

(kk) "***Stock Appreciation Right***" or "***SAR***" means a right to receive the appreciation on Common Stock that is granted pursuant to the terms and conditions of Section 5.

(ll) "***Stock Appreciation Right Agreement***" means a written agreement between the Company and a holder of a Stock Appreciation Right evidencing the terms and conditions of a Stock Appreciation Right grant. Each Stock Appreciation Right Agreement shall be subject to the terms and conditions of the Plan.

(mm) "***Stock Award***" means any right to receive Common Stock granted under the Plan, including an Incentive Stock Option, a Nonstatutory Stock Option, a Restricted Stock Award, a Restricted Stock Unit Award, or a Stock Appreciation Right.

(nn) "***Stock Award Agreement***" means a written agreement between the Company and a Participant evidencing the terms and conditions of a Stock Award grant. Each Stock Award Agreement shall be subject to the terms and conditions of the Plan.

(oo) "***Subsidiary***" means, with respect to the Company, (i) any corporation of which more than 50% of the outstanding capital stock having ordinary voting power to elect a majority of the board of directors of such corporation (irrespective of whether, at the time, stock of any other class or classes of such corporation shall have or might have voting power by reason of the happening of any contingency) is at the time, directly or indirectly, Owned by the Company, and (ii) any partnership, limited liability company or other entity in which the Company has a direct or indirect interest (whether in the form of voting or participation in profits or capital contribution) of more than 50%.

(pp) "***Ten Percent Stockholder***" means a person who Owns (or is deemed to Own pursuant to Section 424(d) of the Code) stock possessing more than ten percent of the total combined voting power of all classes of stock of the Company or any Affiliate.

POSEIDA THERAPEUTICS, INC.

AMENDMENT TO 2015 EQUITY INCENTIVE PLAN

A. **POSEIDA THERAPEUTICS, INC.**, a corporation organized under the laws of the State of Delaware (the "***Company***") established the Company's 2015 Equity Incentive Plan (the "***Plan***") by an original instrument adopted by the Company on February 5, 2015;

B. The Plan currently provides for 545,974 shares of Common Stock to be reserved for issuance under the Plan; and

C. The Company now wishes to amend the Plan to increase the number of shares of Common Stock reserved for issuance under the Plan by 3,958,736 shares to an aggregate of 4,504,710 shares and to modify Section 3(a) and Section 3(c) of the Plan.

NOW THEREFORE, effective immediately, the Plan is amended as follows:

1. The reference to "545,974 shares" in each of Section 3(a) and Section 3(c) of the Plan is amended to reference "4,504,710 shares."

2. In all other respects the Plan will remain the same.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Company has caused this Amendment to the Plan to be executed this 4th day of May, 2015.

POSEIDA THERAPEUTICS, INC.

By: /s/ Eric M. Ostertag
Eric M. Ostertag
Chief Executive Officer

[SIGNATURE PAGE TO POSEIDA THERAPEUTICS, INC.
AMENDMENT TO 2015 EQUITY INCENTIVE PLAN]

POSEIDA THERAPEUTICS, INC.

AMENDMENT NO. 2 TO 2015 EQUITY INCENTIVE PLAN

A. **POSEIDA THERAPEUTICS, INC.**, a corporation organized under the laws of the State of Delaware (the "***Company***"), established the Company's 2015 Equity Incentive Plan (the "***Plan***") by an original instrument adopted by the stockholders of the Company on February 5, 2015;

B. By action of the Company's board of directors and approval of the Company's stockholders as of May 4, 2015, the Company adopted Amendment No. 1 to the Plan to increase the number of shares of the Company's common stock, par value $0.0001 per share ("***Common Stock***"), reserved for issuance under the Plan from 545,974 to 4,504,710 shares;

C. The Plan currently provides that 4,504,710 shares of Common Stock are reserved for issuance under the Plan; and

D. The Company now wishes to amend the Plan to increase the number of shares of Common Stock reserved for issuance under the Plan by 762,747 shares, to an aggregate of 5,267,457 shares, and to amend Section 3(a) and Section 3(c) of the Plan accordingly.

NOW THEREFORE, effective immediately, the Plan is amended as follows:

1. The reference to "4,504,710 shares" in each of Section 3(a) and Section 3(c) of the Plan is hereby deleted and shall be replaced with the phrase "5,267,457 shares".

2. Except as expressly amended hereby, in all other respects the Plan will remain the same.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Company has caused this Amendment No. 2 to the 2015 Equity Incentive Plan to be executed this 15th day of December, 2015.

POSEIDA THERAPEUTICS, INC.

By: /s/ Nishan de Silva
Nishan de Silva
President

[SIGNATURE PAGE TO POSEIDA THERAPEUTICS, INC.
AMENDMENT TO 2015 EQUITY INCENTIVE PLAN]

POSEIDA THERAPEUTICS, INC.

AMENDMENT NO. 3 TO 2015 EQUITY INCENTIVE PLAN

A. **POSEIDA THERAPEUTICS, INC.**, a corporation organized under the laws of the State of Delaware (the "***Company***"), established the Company's 2015 Equity Incentive Plan (the "***Plan***") by an original instrument adopted by the stockholders of the Company on February 5, 2015;

B. By action of the Company's board of directors and approval of the Company's stockholders as of May 4, 2015, the Company adopted Amendment No. 1 to the Plan to increase the number of shares of the Company's common stock, par value $0.0001 per share ("***Common Stock***"), reserved for issuance under the Plan from 545,974 to 4,504,710 shares;

B. By action of the Company's board of directors and approval of the Company's stockholders as of December 15, 2015, the Company adopted Amendment No. 2 to the Plan to increase the number of shares of the Company's common stock, par value $0.0001 per share ("***Common Stock***"), reserved for issuance under the Plan from 4,504,710 to 5,267,457 shares;

C. The Plan currently provides that 5,267,457 shares of Common Stock are reserved for issuance under the Plan; and

D. The Company now wishes to amend the Plan to increase the number of shares of Common Stock reserved for issuance under the Plan by 187,253 shares, to an aggregate of 5,454,710 shares, and to amend Section 3(a) and Section 3(c) of the Plan accordingly.

NOW THEREFORE, effective immediately, the Plan is amended as follows:

1. The reference to "5,267,457 shares" in each of Section 3(a) and Section 3(c) of the Plan is hereby deleted and shall be replaced with the phrase "5,454,710 shares".

2. Except as expressly amended hereby, in all other respects the Plan will remain the same.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Company has caused this Amendment No. 3 to the 2015 Equity Incentive Plan to be executed this 25th day of May, 2016.

POSEIDA THERAPEUTICS, INC.

By: /s/ Nishan de Silva
Nishan de Silva
President

[SIGNATURE PAGE TO POSEIDA THERAPEUTICS, INC.
AMENDMENT TO 2015 EQUITY INCENTIVE PLAN]

POSEIDA THERAPEUTICS, INC.

AMENDMENT NO. 4 TO 2015 EQUITY INCENTIVE PLAN

A. **POSEIDA THERAPEUTICS, INC.**, a corporation organized under the laws of the State of Delaware (the "***Company***"), established the Company's 2015 Equity Incentive Plan (the "***Plan***") by an original instrument adopted by the stockholders of the Company on February 5, 2015;

B. By action of the Company's board of directors and approval of the Company's stockholders as of May 4, 2015, the Company adopted Amendment No. 1 to the Plan to increase the number of shares of the Company's common stock, par value $0.0001 per share ("***Common Stock***"), reserved for issuance under the Plan from 545,974 to 4,504,710 shares;

C. By action of the Company's board of directors and approval of the Company's stockholders as of December 15, 2015, the Company adopted Amendment No. 2 to the Plan to increase the number of shares of Common Stock, reserved for issuance under the Plan from 4,504,710 to 5,267,457 shares;

D. By action of the Company's board of directors and approval of the Company's stockholders as of May 25, 2016, the Company adopted Amendment No. 3 to the Plan to increase the number of shares of Common Stock, reserved for issuance under the Plan from 5,267,457 to 5,454,710 shares;

E. The Plan currently provides that 5,454,710 shares of Common Stock are reserved for issuance under the Plan; and

F. The Company now wishes to amend the Plan to increase the number of shares of Common Stock reserved for issuance under the Plan by 2,000,000 shares, to an aggregate of 7,454,710 shares, and to amend Section 3(a) and Section 3(c) of the Plan accordingly.

NOW THEREFORE, effective immediately, the Plan is amended as follows:

1. The reference to "5,454,710 shares" in each of Section 3(a) and Section 3(c) of the Plan is hereby deleted and shall be replaced with the phrase "7,454,710 shares".

2. Except as expressly amended hereby, in all other respects the Plan will remain the same.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Company has caused this Amendment No. 4 to the 2015 Equity Incentive Plan to be executed October 24, 2018.

POSEIDA THERAPEUTICS, INC.

By: /s/ Eric Ostertag
Eric Ostertag
Chief Executive Officer

[SIGNATURE PAGE TO POSEIDA THERAPEUTICS, INC.
AMENDMENT TO 2015 EQUITY INCENTIVE PLAN]

POSEIDA THERAPEUTICS, INC.
AMENDMENT NO. 5 TO 2015 EQUITY INCENTIVE PLAN

A. **POSEIDA THERAPEUTICS, INC.**, a corporation organized under the laws of the State of Delaware (the "***Company***"), established the Company's 2015 Equity Incentive Plan (the "***Plan***") by an original instrument adopted by the stockholders of the Company on February 5, 2015;

B. By action of the Company's board of directors and approval of the Company's stockholders as of May 4, 2015, the Company adopted Amendment No. 1 to the Plan to increase the number of shares of the Company's common stock, par value $0.0001 per share ("***Common Stock***"), reserved for issuance under the Plan from 545,974 to 4,504,710 shares;

C. By action of the Company's board of directors and approval of the Company's stockholders as of December 15, 2015, the Company adopted Amendment No. 2 to the Plan to increase the number of shares of Common Stock, reserved for issuance under the Plan from 4,504,710 to 5,267,457 shares;

D. By action of the Company's board of directors and approval of the Company's stockholders as of May 25, 2016, the Company adopted Amendment No. 3 to the Plan to increase the number of shares of Common Stock, reserved for issuance under the Plan from 5,267,457 to 5,454,710 shares;

E. By action of the Company's board of directors and approval of the Company's stockholders as of October 24, 2018, the Company adopted Amendment No. 4 to the Plan to increase the number of shares of Common Stock, reserved for issuance under the Plan from 5,454,710 to 7,454,710 shares;

F. The Plan currently provides that 7,454,710 shares of Common Stock are reserved for issuance under the Plan and that a corresponding number of shares of Common Stock may be issued under the Plan pursuant to the exercise of incentive stock options; and

G. The Company now wishes to amend the Plan to increase the number of shares of Common Stock reserved for issuance under the Plan by 1,000,000 shares, to an aggregate of 8,454,710 shares, and to approve a corresponding increase in the number of shares of Common Stock reserved for issuance under the Plan pursuant to the exercise of incentive stock options, and to amend Section 3(a) and Section 3(c) of the Plan accordingly.

NOW THEREFORE, effective immediately, the Plan is amended as follows:

1. The reference to "7,454,710 shares" in each of Section 3(a) and Section 3(c) of the Plan is hereby deleted and shall be replaced with the phrase "8,454,710 shares".

2. Except as expressly amended hereby, in all other respects the Plan will remain the same.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Company has caused this Amendment No. 5 to the 2015 Equity Incentive Plan to be executed this 19th day of March 2019.

POSEIDA THERAPEUTICS, INC.

By: /s/ Eric Ostertag
Eric Ostertag
Chief Executive Officer

[SIGNATURE PAGE TO POSEIDA THERAPEUTICS, INC.
AMENDMENT NO. 5 TO 2015 EQUITY INCENTIVE PLAN]

POSEIDA THERAPEUTICS, INC.
AMENDMENT NO. 6 TO
2015 EQUITY INCENTIVE PLAN

A. **POSEIDA THERAPEUTICS, INC.**, a corporation organized under the laws of the State of Delaware (the "***Company***"), established the Company's 2015 Equity Incentive Plan (the "***Plan***") by an original instrument adopted by the stockholders of the Company on February 5, 2015;

B. By action of the Company's board of directors and approval of the Company's stockholders as of May 4, 2015, the Company adopted Amendment No. 1 to the Plan to increase the number of shares of the Company's common stock, par value $0.0001 per share ("***Common Stock***"), reserved for issuance under the Plan from 545,974 to 4,504,710 shares;

C. By action of the Company's board of directors and approval of the Company's stockholders as of December 15, 2015, the Company adopted Amendment No. 2 to the Plan to increase the number of shares of Common Stock, reserved for issuance under the Plan from 4,504,710 to 5,267,457 shares;

D. By action of the Company's board of directors and approval of the Company's stockholders as of May 25, 2016, the Company adopted Amendment No. 3 to the Plan to increase the number of shares of Common Stock, reserved for issuance under the Plan from 5,267,457 to 5,454,710 shares;

E. By action of the Company's board of directors and approval of the Company's stockholders as of October 24, 2018, the Company adopted Amendment No. 4 to the Plan to increase the number of shares of Common Stock, reserved for issuance under the Plan from 5,454,710 to 7,454,710 shares;

F. By action of the Company's board of directors as of March 18, 2019 and approval of the Company's stockholders as of March 19, 2019, the Company adopted Amendment No. 5 to the Plan to increase the number of shares of Common Stock, reserved for issuance under the Plan from 7,454,710 to 8,454,710 shares;

G. The Plan currently provides that 8,454,710 shares of Common Stock are reserved for issuance under the Plan and that a corresponding number of shares of Common Stock may be issued under the Plan pursuant to the exercise of incentive stock options; and

H. The Company now wishes to amend the Plan to increase the number of shares of Common Stock reserved for issuance under the Plan by 3,000,000 shares, to an aggregate of 11,454,710 shares, and to approve a corresponding increase in the number of shares of Common Stock reserved for issuance under the Plan pursuant to the exercise of incentive stock options, and to amend Section 3(a) and Section 3(c) of the Plan accordingly.

NOW THEREFORE, effective immediately, the Plan is amended as follows:

1. The reference to "8,454,710 shares" in each of Section 3(a) and Section 3(c) of the Plan is hereby deleted and shall be replaced with the phrase "11,454,710 shares".

2. Except as expressly amended hereby, in all other respects the Plan will remain the same.

[**SIGNATURE PAGE FOLLOWS**]

IN WITNESS WHEREOF, the Company has caused this Amendment No. 6 to the 2015 Equity Incentive Plan to be executed this 24th day of June 2020.

POSEIDA THERAPEUTICS, INC.

By: /s/ Eric Ostertag
Eric Ostertag
Chief Executive Officer

[SIGNATURE PAGE TO POSEIDA THERAPEUTICS, INC.
AMENDMENT NO. 6 TO 2015 EQUITY INCENTIVE PLAN]

POSEIDA THERAPEUTICS, INC.
STOCK OPTION GRANT NOTICE
(POSEIDA THERAPEUTICS, INC. 2015 EQUITY INCENTIVE PLAN)

Poseida Therapeutics, Inc. (the "***Company***"), pursuant to its Poseida Therapeutics, Inc. 2015 Equity Incentive Plan (the "***Plan***"), hereby grants to Optionholder an option to purchase the number of shares of the Company's Common Stock set forth below. This option is subject to all of the terms and conditions as set forth herein and in the Option Agreement, the Plan, and the Notice of Exercise, all of which are attached hereto and incorporated herein in their entirety.

Optionholder:	_____
Date of Grant:	_____
Vesting Commencement Date:	_____
Number of Shares Subject to Option:	_____
Exercise Price (Per Share):	_____
Total Exercise Price:	_____
Expiration Date:	_____

Type of Grant: ☐ Incentive Stock Option[1] ☐ Nonstatutory Stock Option

Exercise Schedule: ☐ Same as Vesting Schedule ☐ Early Exercise Permitted

Vesting Schedule: [12.5% of the shares subject to the option shall vest on the six-month anniversary of the Vesting Commencement Date, with the balance vesting in 42 successive monthly installments thereafter, so long as the optionee remains an Advisor, Director or Employee of the Company on each such monthly vesting date.]

Payment: By one or a combination of the following items (described in the Option Agreement):

☒ Bycash or check
☒ Pursuantto a Regulation T Program if the Shares are publicly traded
☒ Bydelivery of already-owned shares if the Shares are publicly traded
☐ Bydeferred payment
☐ Bynet exercise

Additional Terms/Acknowledgements: The undersigned Optionholder acknowledges receipt of, and understands and agrees to, this Stock Option Grant Notice, the Option Agreement and the Plan. Optionholder acknowledges and agrees that this Stock Option Grant Notice and the Option Agreement may not be modified, amended or revised except in a writing signed by Optionholder and a duly authorized officer of the Company. Optionholder further acknowledges that as of the Date of Grant, this Stock Option Grant Notice, the Option Agreement, and the Plan set forth the entire understanding between Optionholder and the Company regarding the acquisition of stock in the Company and supersede all prior oral and written agreements, promises and/or representations on that subject with the exception of (i) options previously granted and delivered to Optionholder under the Plan, and (ii) the following agreements only:

OTHER AGREEMENTS: _____

_____

[1] NTD: If this is an Incentive Stock Option, it (plus other outstanding Incentive Stock Options) cannot be first *exercisable* for more than $100,000 in value (measured by exercise price) in any calendar year. Any excess over $100,000 is a Nonstatutory Stock Option.

POSEIDA THERAPEUTICS, INC.	**OPTIONHOLDER:**
By: _____	_____
Signature	Signature
Title: _____	Date: _____
Date: _____	

ATTACHMENTS: Option Agreement, Poseida Therapeutics, Inc. 2015 Equity Incentive Plan and Notice of Exercise

ATTACHMENT I

OPTION AGREEMENT

POSEIDA THERAPEUTICS, INC.

2015 EQUITY INCENTIVE PLAN

OPTION AGREEMENT
(INCENTIVE STOCK OPTION OR NONSTATUTORY STOCK OPTION)

Pursuant to your Stock Option Grant Notice ("***Grant Notice***") and this Option Agreement, Poseida Therapeutics, Inc. (the "***Company***") has granted you an option under its 2015 Equity Incentive Plan (the "***Plan***") to purchase the number of shares of the Company's Common Stock indicated in your Grant Notice at the exercise price indicated in your Grant Notice. Capitalized terms not explicitly defined in this Option Agreement but defined in the Plan shall have the same definitions as in the Plan.

The details of your option are as follows:

1. VESTING. Subject to the limitations contained herein, your option will vest as provided in your Grant Notice, provided that vesting will cease upon the termination of your Continuous Service in accordance with the terms of the Plan.

2. NUMBER OF SHARES AND EXERCISE PRICE. The number of shares of Common Stock subject to your option and your exercise price per share referenced in your Grant Notice may be adjusted from time to time for Capitalization Adjustments.

3. EXERCISE RESTRICTION FOR NON-EXEMPT EMPLOYEES. In the event that you are an Employee eligible for overtime compensation under the Fair Labor Standards Act of 1938, as amended (i.e., a "***Non-Exempt Employee***"), and except as otherwise provided in the Plan, you may not exercise your option until you have completed at least six months of Continuous Service measured from the date of grant specified in your Grant Notice (the "***Date of Grant***"), notwithstanding any other provision of your option. Notwithstanding the foregoing, consistent with the provisions of the Worker Economic Opportunity Act, (i) in the event of your death or disability, (ii) upon a Corporate Transaction in which your option is not assumed, continued or substituted or (iii) upon a Change in Control in which the vesting of your option accelerates, you may exercise the vested portion of your option earlier than six months following the Date of Grant.

4. EXERCISE PRIOR TO VESTING ("EARLY EXERCISE"). If permitted in your Grant Notice (i.e., the "Exercise Schedule" indicates "Early Exercise Permitted") and subject to the provisions of your option, you may elect at any time that is both (i) during the period of your Continuous Service and (ii) during the term of your option, to exercise all or part of your option, including the unvested portion of your option; *provided*, *however*, that:

(a) a partial exercise of your option shall be deemed to cover first vested shares of Common Stock and then the earliest vesting installment of unvested shares of Common Stock;

(b) any shares of Common Stock so purchased from installments that have not vested as of the date of exercise shall be subject to the purchase option in favor of the Company as described in the Company's form of Early Exercise Stock Purchase Agreement;

(c) you shall enter into the Company's form of Early Exercise Stock Purchase Agreement with a vesting schedule that will result in the same vesting as if no early exercise had occurred; and

(d) if your option is an Incentive Stock Option, then, to the extent that the aggregate Fair Market Value (determined at the time of grant) of the shares of Common Stock with respect to which your option plus all other Incentive Stock Options you hold are exercisable for the first time by you during any calendar year (under all plans of the Company and its Affiliates) exceeds $100,000, your option(s) or portions thereof that exceed such limit (according to the order in which they were granted) shall be treated as Nonstatutory Stock Options.

5. METHOD OF PAYMENT. Payment of the exercise price is due in full upon exercise of all or any part of your option. You may elect to make payment of the exercise price in cash or by check or in any other manner ***permitted by your Grant Notice***, which may include one or more of the following:

(a) Provided that at the time of exercise the Common Stock is publicly traded, and to the extent permitted by law, pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of Common Stock, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds.

(b) Provided that at the time of exercise the Common Stock is publicly traded, by delivery to the Company (either by actual delivery or attestation) of already-owned shares of Common Stock that are owned free and clear of any liens, claims, encumbrances or security interests, and that are valued at Fair Market Value on the date of exercise. "Delivery" for these purposes, in the sole discretion of the Company at the time you exercise your option, shall include delivery to the Company of your attestation of ownership of such shares of Common Stock in a form approved by the Company. Notwithstanding the foregoing, you may not exercise your option by tender to the Company of Common Stock to the extent such tender would violate the provisions of any law, regulation or agreement restricting the redemption of the Company's stock.

(c) Pursuant to the following deferred payment alternative:

(i) Not less than 100% of the aggregate exercise price, plus accrued interest, shall be due four years from date of exercise or, at the Company's election, upon termination of your Continuous Service.

(ii) Interest shall be compounded at least annually and shall be charged at the minimum rate of interest necessary to avoid (1) the treatment as interest, under any applicable provisions of the Code, of any amounts other than amounts stated to be interest under the deferred payment arrangement and (2) the classification of your option as a liability for financial accounting purposes.

(iii) To elect the deferred payment alternative, you must, as a part of your written notice of exercise, give notice of the election of this payment alternative and, in order to secure the payment of the deferred exercise price to the Company hereunder, if the Company so requests, you must tender to the Company a promissory note and a pledge agreement covering the purchased shares of Common Stock, both in form and substance satisfactory to the Company, or such other or additional documentation as the Company may request.

(d) If the option is a Nonstatutory Stock Option, by a "net exercise" arrangement pursuant to which the Company will reduce the number of shares of Common Stock issued upon exercise of your option by the largest whole number of shares with a Fair Market Value that does not exceed the aggregate exercise price; *provided*, *however*, that the Company shall accept a cash or other payment from you to the extent of any remaining balance of the aggregate exercise price not satisfied by such reduction in the number of whole shares to be issued; *provided further*, that shares of Common Stock will no longer be outstanding under your option and will not be exercisable thereafter to the extent that (1) shares are used to pay the exercise price pursuant to the "net exercise," (2) shares are delivered to you as a result of such exercise, and (3) shares are withheld to satisfy tax withholding obligations.

(e) in any other form of legal consideration that may be acceptable to the Board.

6. WHOLE SHARES. You may exercise your option only for whole shares of Common Stock.

7. SECURITIES LAW COMPLIANCE. Notwithstanding anything to the contrary contained herein, you may not exercise your option unless the shares of Common Stock issuable upon such exercise are then registered under the Securities Act or, if such shares of Common Stock are not then so registered, the Company has determined that such exercise and issuance would be exempt from the registration requirements of the Securities Act. The exercise of your option also must comply with other applicable laws and regulations governing your option, and you may not exercise your option if the Company determines that such exercise would not be in material compliance with such laws and regulations.

8. TERM. You may not exercise your option before the commencement or after the expiration of its term. The term of your option commences on the Date of Grant and expires, subject to the provisions of Section 5(h) of the Plan, upon the earliest of the following:

(a) immediately upon the termination of your Continuous Service for Cause;

(b) three months after the termination of your Continuous Service for any reason other than Cause or your Disability or death, provided that if during any part of such three month period you may not exercise your option solely because of the condition set forth in Section 7 relating to "Securities Law Compliance," your option shall not expire until the earlier of the Expiration Date or until it shall have been exercisable for an aggregate period of three months after the termination of your Continuous Service; and if (i) you are a Non-Exempt Employee, (ii) your Continuous Service terminates within six months after the Date of Grant,

and (iii) you have vested in a portion of your option at the time of your termination of Continuous Service, your option shall not expire until the earlier of (x) the later of (A) the date that is seven months after the Date of Grant or (B) the date that is three months after the termination of your Continuous Service, or (y) the Expiration Date;

(c) twelve months after the termination of your Continuous Service due to your Disability;

(d) eighteen months after your death if you die during your Continuous Service;

(e) the Expiration Date indicated in your Grant Notice; or

(f) the day before the tenth anniversary of the Date of Grant.

Notwithstanding the foregoing, if you die during the period provided in Section 8(b) or 8(c) above, the term of your option shall not expire until the earlier of 18 months after your death, the Expiration Date indicated in your Grant Notice, or the day before the tenth anniversary of the Date of Grant.

If your option is an Incentive Stock Option, note that to obtain the federal income tax advantages associated with an Incentive Stock Option, the Code requires that at all times beginning on the date of grant of your option and ending on the day three months before the date of your option's exercise, you must be an employee of the Company or an Affiliate, except in the event of your death or Disability. The Company has provided for extended exercisability of your option under certain circumstances for your benefit but cannot guarantee that your option will necessarily be treated as an Incentive Stock Option if you continue to provide services to the Company or an Affiliate as a Consultant or Director after your employment terminates or if you otherwise exercise your option more than three months after the date your employment with the Company or an Affiliate terminates.

9. EXERCISE.

(a) You may exercise the vested portion of your option (and the unvested portion of your option if your Grant Notice so permits) during its term by delivering a Notice of Exercise (in a form designated by the Company at the time of exercise) together with the exercise price to the Secretary of the Company, or to such other person as the Company may designate, during regular business hours, together with such additional documents as the Company may then require.

(b) By exercising your option you agree that, as a condition to any exercise of your option, the Company may require you to enter into an arrangement providing for the payment by you to the Company of any tax withholding obligation of the Company arising by reason of (1) the exercise of your option, (2) the lapse of any substantial risk of forfeiture to which the shares of Common Stock are subject at the time of exercise, or (3) the disposition of shares of Common Stock acquired upon such exercise.

(c) If your option is an Incentive Stock Option, by exercising your option you agree that you will notify the Company in writing within 15 days after the date of any disposition of any of the shares of the Common Stock issued upon exercise of your option that occurs within two years after the date of your option grant or within one year after such shares of Common Stock are transferred upon exercise of your option.

(d) By exercising your option you agree that you shall not sell, dispose of, transfer, make any short sale of, grant any option for the purchase of, or enter into any hedging or similar transaction with the same economic effect as a sale, any shares of Common Stock or other securities of the Company held by you, for a period of 180 days following the effective date of a registration statement of the Company filed under the Securities Act or such longer period as necessary to permit compliance with FINRA Rule 2711 or NYSE Member Rule 472 and similar rules and regulations (the "***Lock-Up Period***"); *provided*, *however*, that nothing contained in this Section 9(d) shall prevent the exercise of a repurchase option, if any, in favor of the Company during the Lock-Up Period. You further agree to execute and deliver such other agreements as may be reasonably requested by the Company and/or the underwriters that are consistent with the foregoing or that are necessary to give further effect thereto. To enforce the foregoing covenant, the Company may impose stop-transfer instructions with respect to your shares of Common Stock until the end of such period. The underwriters of the Company's stock are intended third party beneficiaries of this Section 9(d) and shall have the right, power and authority to enforce the provisions hereof as though they were a party hereto.

(e) As a condition to your exercise of your option and to the Company's issuance and delivery of the shares of Common Stock issuable upon such exercise, the Company may require that you execute certain customary agreements entered into with the holders of capital stock of the Company, such as a right of first refusal and co-sale agreement, stockholders' agreement and a voting agreement.

10. TRANSFERABILITY. Except as otherwise provided in this Section 10, your option is not transferable except by will or by the laws of descent and distribution and is exercisable during your lifetime only by you; *provided*, *however*, that the Board may, in its sole discretion, permit you to transfer your option to such extent as permitted by Rule 701, if applicable at the time of the grant of the option and in a manner consistent with applicable tax and securities laws upon your request. Additionally, if your option is an Incentive Stock Option, the Board may permit you to transfer your option only to the extent permitted by Sections 421, 422 and 424 of the Code and the regulations and other guidance thereunder.

(a) Domestic Relations Orders. Upon receiving written permission from the Board or its duly authorized designee, and provided that you and the designated transferee enter into transfer and other agreements required by the Company, you may transfer your option pursuant to a domestic relations order that contains the information required by the Company to effectuate the transfer. You are encouraged to ***discuss the proposed terms*** of any division of this option with the Company prior to finalizing the domestic relations order to help ensure the required information is contained within the domestic relations order. If this option is an Incentive Stock Option, this option may be deemed to be a Nonstatutory Stock Option as a result of such transfer.

(b) Beneficiary Designation. Upon receiving written permission from the Board or its duly authorized designee, you may, by delivering written notice to the Company, in a form provided by or otherwise satisfactory to the Company, designate a third party who, in the event of your death, shall thereafter be entitled to exercise your option and receive the Common Stock or other consideration resulting from such exercise. In the absence of such a designation, the executor or administrator of your estate shall be entitled to exercise this option and receive, on behalf of your estate, the Common Stock or other consideration resulting from such exercise.

11. RIGHT OF FIRST REFUSAL. Shares of Common Stock that you acquire upon exercise of your option will be subject to the right of first refusal described below. The Company's right of first refusal will expire upon the initial public offering of the Company's common stock pursuant to a registration statement filed with and declared effective by the Securities and Exchange Commission or any foreign regulatory agency under the Securities Act or any foreign securities laws (the "***Listing Date***").

(a) Prior to the Listing Date, you may not validly Transfer (as defined below) any shares of stock acquired upon exercise of your option, or any interest in such snares, unless such Transfer is made in compliance with the following provisions:

(i) Before there can be a valid Transfer of any shares or any interest therein, the record holder of the shares to be transferred (the "***Offered Shares***") will give written notice (by registered or certified mail) to the Company. Such notice will specify the identity of the proposed transferee, the cash price offered for the Offered Shares by the proposed transferee (or, if the proposed Transfer is one in which the holder will not receive cash, such as an involuntary transfer, gift, donation or pledge, the holder will state that no purchase price is being proposed), and the other terms and conditions of the proposed Transfer. The date such notice is mailed will be hereinafter referred to as the "***Notice Date***" and the record holder of the Offered Shares will be hereinafter referred to as the "***Offeror***." If, from time to time, there is any stock dividend, stock split or other change in the character or amount of any of the outstanding stock of the corporation the stock of which is subject to the provisions of your option, then in such event any and all new, substituted or additional securities to which you are entitled by reason of your ownership of the shares acquired upon exercise of your option will be immediately subject to the Company's Right of First Refusal (as defined below) with the same force and effect as the shares subject to the Right of First Refusal immediately before such event.

(ii) For a period of 30 calendar days after the Notice Date; or such longer period as may be required to avoid the classification of your option as a liability for financial accounting purposes, the Company will have the option to purchase all (but not less than all) of the Offered Shares at the purchase price and on the terms set forth in Section 11(a)(iii) (the Company's "***Right of First Refusal***"). In the event that the proposed Transfer is one involving no payment of a purchase price, the purchase price will be deemed to be the Fair Market Value of the Offered Shares as determined in good faith by the Board in its discretion. The Company may exercise its Right of First Refusal by mailing (by registered or certified mail) written notice of exercise of its Right of First Refusal to the Offeror prior to the end of said 30-days (including any extension required to avoid classification of the option as a liability for financial accounting purposes).

(iii) The price at which the Company may purchase the Offered Shares pursuant to the exercise of its Right of First Refusal will be the cash price offered for the Offered Shares by the proposed transferee (as set forth in the notice required under Section 11(a)(i)), or the Fair Market Value as determined by the Board in the event no purchase price is involved. To the extent consideration other than cash is offered by the proposed transferee, the Company will not be required to pay any additional amounts to the Offeror other than the cash price offered (or the Fair Market Value, if applicable). The Company's notice of exercise of its Right of First Refusal will be accompanied by full payment for the Offered Shares and, upon such payment by the Company, the Company will acquire full right, title and interest to all of the Offered Shares.

(iv) If, and only if, the option given pursuant to Section 11(a)(ii) is not exercised, the Transfer proposed in the notice given pursuant to Section 11(a)(i) may take place; *provided*, *however*, that such Transfer must, in all respects, be exactly as proposed in said notice except that such Transfer may not take place either before the tenth calendar day after the expiration of the 30-day option exercise period or after the 90th calendar day after the expiration of the 30-day option exercise period, and if such Transfer has not taken place prior to said 90th day, such Transfer may not take place without once again complying with this Section 11(a). The option exercise periods in this Section 11(a)(iv) will be adjusted to include any extension required to avoid the classification of your option as a liability for financial accounting purposes.

(b) As used in this Section 11 and in Section 12 below, the term "***Transfer***" means any sale, encumbrance, pledge, gift or other form of disposition or transfer of shares of the Company's stock or any legal or equitable interest therein; *provided*, *however*, that the term Transfer does not include a transfer of such shares or interests by will or by the applicable laws of descent and distribution.

(c) None of the shares of the Company's stock purchased on exercise of your option will be transferred on the Company's books nor will the Company recognize any such Transfer of any such shares or any interest therein unless and until all applicable provisions of this Section 11 have been complied with in all respects. The certificates of stock evidencing shares of stock purchased on exercise of your option will bear an appropriate legend referring to the transfer restrictions imposed by this Section 11.

(d) To ensure that the shares subject to the Company's Right of First Refusal will be available for repurchase by the Company, the Company may require you to deposit the certificates evidencing the shares that you purchase upon exercise of your option with an escrow agent designated by the Company under the terms and conditions of an escrow agreement approved by the Company. If the Company does not require such deposit as a condition of exercise of your option, the Company reserves the right at any time to require you to so deposit the certificates in escrow. As soon as practicable after the expiration of the Company's Right of First Refusal, the agent will deliver to you the shares and any other property no-longer subject to such restriction. In the event the shares and any other property held in escrow are subject to the Company's exercise of its Right of First Refusal, the notices required to be given to you will be given to the escrow agent, and any payment required to be given to you will be given to the escrow agent. Within 30 days after payment by the Company for the Offered Shares, the escrow agent will deliver the Offered Shares that the Company has repurchased to the Company and will deliver the payment received from the Company to you.

12. RIGHT OF REPURCHASE.

(a) Subject to the "Repurchase Limitation" in Section 8(1) of the Plan, the Company will have a Repurchase Right (as defined below), prior to the Listing Date, as to all or any part of the shares received pursuant to the exercise of your option on the terms and conditions below.

(b) The Company may elect (but is not obligated) to repurchase all or any part of the shares that you acquired upon exercise of your option (the Company's "***Repurchase Right***"). If, from time to time, there is any stock dividend, stock split or other change in the character or amount of any of the outstanding stock of the Company the stock of which is subject to the provisions of your option, then in such event any and all new, substituted or additional securities to which you are entitled by reason of your ownership of the shares acquired upon exercise of your option will be immediately subject to this Repurchase Right with the same force and effect as the shares subject to the Company's Repurchase Right immediately before such event.

(c) The Company's Repurchase Right will be exercisable only within the 90 day period following a Repurchase Event (or such longer period as may be required to avoid classification of the option as a liability for financial accounting purposes), or such longer period as may be agreed to by the Company and you (the "***Repurchase Period***"). Each of the following events will constitute a "***Repurchase Event***":

(i) Termination of your Continuous Service for any reason or no reason, with or without cause, including death or Disability, in which event the Repurchase Period will commence on the date of termination of your Continuous Service (or in the case of a post-termination exercise of your option, the date of such exercise).

(ii) You, your legal representative, or other holder of shares of Common Stock acquired upon exercise of your option attempts to Transfer (as defined in Section 11 above) any of the shares without compliance with the right of first refusal provisions contained in Section 11 above, in which event the Repurchase Period will commence on the date the Company receives actual notice of such attempted Transfer.

(iii) The receivership, bankruptcy, or other creditor's proceeding regarding you or the taking of any of the shares by legal process, such as a levy of execution, in which event the Repurchase Period will commence on the date the Company receives actual notice of the commencement of pendency of the receivership, bankruptcy or other creditor's proceeding or the date of such taking, as the case may be, and the Fair Market Value of the shares will be determined as of the last day of the month preceding the month in which the proceeding involved commenced or the taking occurred.

(d) The Company will not exercise its Repurchase Right for less than all of the shares without your consent, will exercise its Repurchase Right only for cash or cancellation of purchase money indebtedness for the shares of Common Stock and will give you written notice (by registered or certified mail) accompanied by payment for the shares of Common Stock within 90 calendar days after the Repurchase Event or, if later, 90 calendar days after a proper

purchase of shares following such Repurchase Event (*i.e.*, upon exercise of the option), including after any extension of the Repurchase Period for financial accounting purposes.

(e) The repurchase price will be equal to the shares' Fair Market Value on the date of repurchase.

(f) To ensure that the shares subject to the Company's Repurchase Right will be available for repurchase by the Company, the Company may require you to deposit the certificates evidencing the shares that you purchase upon exercise of your option with an escrow agent designated by the Company under the terms and conditions of an escrow agreement approved by the Company. If the Company does not require such deposit as a condition of exercise of your option, the Company reserves the right at any time to require you to so deposit the certificates in escrow. As soon as practicable after the expiration of the Company's Repurchase Right, the agent will deliver to you the shares of Common Stock and any other property no longer subject to such restriction. In the event the shares and any other property held in escrow are subject to the Company's exercise of its Repurchase Right, the notices required to be given to you will be given to the escrow agent, and any payment required to be given to you will be given to the escrow agent. Within 30 days after payment by the Company for the shares, the escrow agent will deliver the shares of Common Stock that the Company has purchased to the Company and will deliver the payment received from the Company to you.

13. OPTION NOT A SERVICE CONTRACT. Your option is not an employment or service contract, and nothing in your option shall be deemed to create in any way whatsoever any obligation on your part to continue in the employ of the Company or an Affiliate, or of the Company or an Affiliate to continue your employment. In addition, nothing in your option shall obligate the Company or an Affiliate, their respective stockholders, Boards of Directors, Officers or Employees to continue any relationship that you might have as a Director or Consultant for the Company or an Affiliate.

14. WITHHOLDING OBLIGATIONS.

(a) At the time you exercise your option, in whole or in part, or at any time thereafter as requested by the Company, you hereby authorize withholding from payroll and any other amounts payable to you, and otherwise agree to make adequate provision for (including by means of a "cashless exercise" pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board to the extent permitted by the Company), any sums required to satisfy the federal, state, local and foreign tax withholding obligations of the Company or an Affiliate, if any, which arise in connection with the exercise of your option.

(b) Upon your request and subject to approval by the Company, in its sole discretion, and compliance with any applicable legal conditions or restrictions, the Company may withhold from fully vested shares of Common Stock otherwise issuable to you upon the exercise of your option a number of whole shares of Common Stock having a Fair Market Value, determined by the Company as of the date of exercise, not in excess of the minimum amount of tax required to be withheld by law (or such lower amount as may be necessary to avoid classification of your option as a liability for financial accounting purposes). If the date of determination of any tax withholding obligation is deferred to a date later than the date of

exercise of your option, share withholding pursuant to the preceding sentence shall not be permitted unless you make a proper and timely election under Section 83(b) of the Code, covering the aggregate number of shares of Common Stock- acquired upon such exercise with respect to which such determination is otherwise deferred, to accelerate the determination of such tax withholding obligation to the date of exercise of your option. Notwithstanding the filing of such election, shares of Common Stock shall be withheld solely from fully vested shares of Common Stock determined as of the date of exercise of your option that are otherwise issuable to you upon such exercise. Any adverse consequences to you arising in connection with such share withholding procedure shall be your sole responsibility.

(c) You may not exercise your option unless the tax withholding obligations of the Company and/or any Affiliate are satisfied. Accordingly, you may not be able to exercise your option when desired even though your option is vested, and the Company shall have no obligation to• issue a certificate for such shares of Common Stock or release such shares of Common Stock from any escrow provided for herein unless such obligations are satisfied.

15. TAX CONSEQUENCES. You hereby agree that the Company does not have a duty to design or administer the Plan or its other compensation programs in a manner that minimizes your tax liabilities. You shall not make any claim against the Company, or any of its Officers, Directors, Employees or Affiliates related to tax liabilities arising from your option or your other compensation. In particular, you acknowledge that this option is exempt from Section 409A of the Code only if the exercise price per share specified in the Grant Notice is at least equal to the "fair market value" per share of the Common Stock on the Date of Grant and there is no other impermissible deferral of compensation associated with the option. While the Common Stock is not traded on an established securities market, the Fair Market Value is determined by the Board, perhaps in consultation with an independent valuation firm retained by the Company. You acknowledge that there is no guarantee that the Internal Revenue Service will agree with the valuation as determined by the Board, and you shall not make any claim against the Company, or any of its Officers, Directors, Employees or Affiliates in the event that the Internal Revenue Service asserts that the valuation determined by the Board is less than the "fair market value" as subsequently determined by the Internal Revenue Service.

16. NOTICES. Any notices provided for in your option or the Plan shall be given in writing and shall be deemed effectively given upon receipt or, in the case of notices delivered by mail by the Company to you, five days after deposit in the United States mail, postage prepaid, addressed to you at the last address you provided to the Company.

17. GOVERNING PLAN DOCUMENT. Your option is subject to all the provisions of the Plan, the provisions of which are hereby made a part of your option, and is further subject to all interpretations, amendments, rules and regulations, which may from time to time be promulgated and adopted pursuant to the Plan. In the event of any conflict between the provisions of your option and those of the Plan, the provisions of the Plan shall control.

ATTACHMENT II

POSEIDA THERAPEUTICS, INC. 2015 EQUITY INCENTIVE PLAN

ATTACHMENT III

NOTICE OF EXERCISE

NOTICE OF EXERCISE

POSEIDA THERAPEUTICS, INC. 2015 EQUITY INCENTIVE PLAN

Poseida Therapeutics, Inc.
4242 Campus Point Court, Suite 700
San Diego, California 92121
Attention: Finance

Date of Exercise: _____

Ladies and Gentlemen:

This constitutes notice under my option that I elect to purchase the number of shares of Common Stock of Poseida Therapeutics, Inc. (the "***Company***") for the price set forth below.

Type of option (check one):	Incentive ☐	Nonstatutory ☐
Option dated:	_____	
Number of shares as to which option is exercised:	_____	
Shares to be issued in name of:	_____	
Total exercise price:	$ _____	
Cash payment delivered herewith:	$ _____	

By this exercise, I agree (i) to provide such additional documents as you may require pursuant to the terms of the Poseida Therapeutics, Inc. 2015 Equity Incentive Plan, (ii) to provide for the payment by me to you (in the manner designated by you) of your withholding .obligation, if any, relating to the exercise of the option, and (iii) if this exercise relates to an incentive stock option, to notify you in writing within 15 days after the date of any disposition of any of the shares of Common Stock issued upon exercise of the option that occurs within two years after the date of grant of the option or within one year after such shares of Common Stock are issued upon exercise of the option.

If at the time of exercise of the option the Common Stock of the Company is not publicly traded, I hereby make the following certifications and representations with respect to the number of shares of Common Stock of the Company listed above (the "***Shares***"), which are being acquired by me for my own account upon exercise of the option as set forth above:

I acknowledge that the Shares have not been registered under the Securities Act of 1933, as amended (the "***Securities Act***"), and are deemed to constitute "restricted securities" under Rule 701 and Rule 144 promulgated under the Securities Act. I warrant and represent to the Company that I have no present intention of distributing or selling said Shares, except as permitted under the Securities Act and any applicable state securities laws.

I further acknowledge that I will not be able to resell the Shares for at least 90 days after

the stock of the Company becomes publicly traded (*i.e.*, subject to the reporting requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended) under Rule 701 and that more restrictive conditions apply to affiliates of the Company under Rule 144.

I further acknowledge that all certificates representing any of the Shares subject to the provisions of the option shall have endorsed thereon appropriate legends reflecting the foregoing limitations, as well as any legends reflecting restrictions pursuant to the Option Agreement, the Company's Articles of Incorporation, Bylaws and/or applicable securities laws.

I further agree that, if required by the Company (or a representative of the underwriters) in connection with the first underwritten registration of the offering of any securities of the Company under the Securities Act, I will not sell, dispose of, transfer, make any short sale of, grant any option for the purchase of, or enter into any hedging or similar transaction with the same economic effect as a sale, any shares of Common Stock or other securities of the Company for a period of 180 days following the effective date of a registration statement of the Company filed under the Securities Act or such longer period as necessary to permit compliance with NASD Rule 2711 or NYSE Member Rule 472 and similar rules and regulations (the "***Lock-Up Period***"). I further agree to execute and deliver such other agreements as may be reasonably requested by the Company and/or the underwriters that are consistent with the foregoing or that are necessary to give further effect thereto. To enforce the foregoing covenant, the Company may impose stop-transfer instructions with respect to securities subject to the foregoing restrictions until the end of such period.

Very truly yours,

_____

Address: _____

_____

POSEIDA THERAPEUTICS, INC.
2020 EQUITY INCENTIVE PLAN

ADOPTED BY THE BOARD OF DIRECTORS: JULY 1, 2020
APPROVED BY THE STOCKHOLDERS: JULY 1, 2020

1. GENERAL.

(a) Successor to and Continuation of Prior Plan. The Plan is the successor to and continuation of the Prior Plan. As of the Effective Date, (i) no additional awards may be granted under the Prior Plan; (ii) the Prior Plan's Available Reserve will become available for issuance pursuant to Awards granted under this Plan; and (iii) all outstanding awards granted under the Prior Plan will remain subject to the terms of the Prior Plan; *provided*, *however*, that any Returning Shares will become available for issuance pursuant to Awards granted under this Plan. All Awards granted under this Plan will be subject to the terms of this Plan.

(b) Plan Purpose. The Company, by means of the Plan, seeks to secure and retain the services of Employees, Directors and Consultants, to provide incentives for such persons to exert maximum efforts for the success of the Company and any Affiliate and to provide a means by which such persons may be given an opportunity to benefit from increases in value of the Common Stock through the granting of Awards.

(c) Available Awards. The Plan provides for the grant of the following Awards: (i) Incentive Stock Options; (ii) Nonstatutory Stock Options; (iii) SARs; (iv) Restricted Stock Awards; (v) RSU Awards; (vi) Performance Awards; and (vii) Other Awards.

(d) Adoption Date; Effective Date. The Plan will come into existence on the Adoption Date, but no Award may be granted prior to the Effective Date.

2. SHARES SUBJECT TO THE PLAN.

(a) Share Reserve. Subject to adjustment in accordance with Section 2(c) and any adjustments as necessary to implement any Capitalization Adjustments, the aggregate number of shares of Common Stock that may be issued pursuant to Awards will not exceed 11,183,476 shares, which number is the sum of: (i) 4,500,000 new shares, plus (ii) the Prior Plan's Available Reserve, plus (iii) the number of Returning Shares, if any, as such shares become available from time to time.

In addition, subject to any adjustments as necessary to implement any Capitalization Adjustments, such aggregate number of shares of Common Stock will automatically increase on January 1 of each year for a period of ten years commencing on January 1, 2021 and ending on (and including) January 1, 2030, in an amount equal to 5.0% of the total number of shares of Common Stock outstanding on December 31 of the preceding year; provided, however that the Board may act prior to January 1st of a given year to provide that the increase for such year will be a lesser number of shares of Common Stock.

(b) Aggregate Incentive Stock Option Limit. Notwithstanding anything to the contrary in Section 2(a) and subject to any adjustments as necessary to implement any Capitalization Adjustments, the aggregate maximum number of shares of Common Stock that may be issued pursuant to the exercise of Incentive Stock Options is 33,550,428 shares.

(c) Share Reserve Operation.

(i) Limit Applies to Common Stock Issued Pursuant to Awards. For clarity, the Share Reserve is a limit on the number of shares of Common Stock that may be issued pursuant to Awards and does not limit the granting of Awards, except that the Company will keep available at all times the number of shares of Common Stock reasonably required to satisfy its obligations to issue shares pursuant to such Awards. Shares may be issued in connection with a merger or acquisition as permitted by, as applicable, Nasdaq Listing Rule 5635(c), NYSE Listed Company Manual Section 303A.08, NYSE American Company Guide Section 711 or other applicable rule, and such issuance will not reduce the number of shares available for issuance under the Plan.

(ii) Actions that Do Not Constitute Issuance of Common Stock and Do Not Reduce Share Reserve. The following actions do not result in an issuance of shares under the Plan and accordingly do not reduce the number of shares subject to the Share Reserve and available for issuance under the Plan: (a) the expiration or termination of any portion of an Award without the shares covered by such portion of the Award having been issued, (b) the settlement of any portion of an Award in cash (*i.e.*, the Participant receives cash rather than Common Stock), (c) the withholding of shares that would otherwise be issued by the Company to satisfy the exercise, strike or purchase price of an Award; (d) the withholding of shares that would otherwise be issued by the Company to satisfy a tax withholding obligation in connection with an Award.

(iii) Reversion of Previously Issued Shares of Common Stock to Share Reserve. The following shares of Common Stock previously issued pursuant to an Award and accordingly initially deducted from the Share Reserve will be added back to the Share Reserve and again become available for issuance under the Plan: (a) any shares that are forfeited back to or repurchased by the Company because of a failure to meet a contingency or condition required for the vesting of such shares; (b) any shares that are reacquired by the Company to satisfy the exercise, strike or purchase price of an Award; and (c) any shares that are reacquired by the Company to satisfy a tax withholding obligation in connection with an Award.

3. ELIGIBILITY AND LIMITATIONS.

(a) Eligible Award Recipients. Subject to the terms of the Plan, Employees, Directors and Consultants are eligible to receive Awards.

(b) Specific Award Limitations.

(i) Limitations on Incentive Stock Option Recipients. Incentive Stock Options may be granted only to Employees of the Company or a "parent corporation" or "subsidiary corporation" thereof (as such terms are defined in Sections 424(e) and (f) of the Code).

(ii) Incentive Stock Option $100,000 Limitation. To the extent that the aggregate Fair Market Value (determined at the time of grant) of Common Stock with respect to which Incentive Stock Options are exercisable for the first time by any Optionholder during any calendar year (under all plans of the Company and any Affiliates) exceeds $100,000 (or such

other limit established in the Code) or otherwise does not comply with the rules governing Incentive Stock Options, the Options or portions thereof that exceed such limit (according to the order in which they were granted) or otherwise do not comply with such rules will be treated as Nonstatutory Stock Options, notwithstanding any contrary provision of the applicable Option Agreement(s).

(iii) Limitations on Incentive Stock Options Granted to Ten Percent Stockholders. A Ten Percent Stockholder may not be granted an Incentive Stock Option unless (i) the exercise price of such Option is at least 110% of the Fair Market Value on the date of grant of such Option and (ii) the Option is not exercisable after the expiration of five years from the date of grant of such Option.

(iv) Limitations on Nonstatutory Stock Options and SARs. Nonstatutory Stock Options and SARs may not be granted to Employees, Directors and Consultants who are providing Continuous Service only to any "parent" of the Company (as such term is defined in Rule 405) unless the stock underlying such Awards is treated as "service recipient stock" under Section 409A because the Awards are granted pursuant to a corporate transaction (such as a spin off transaction) or unless such Awards otherwise comply with the distribution requirements of Section 409A.

(c) Aggregate Incentive Stock Option Limit. The aggregate maximum number of shares of Common Stock that may be issued pursuant to the exercise of Incentive Stock Options is the number of shares specified in Section 2(b).

(d) Non-Employee Director Compensation Limit. The aggregate value of all compensation granted or paid, as applicable, to any individual for service as a Non-Employee Director with respect to any period commencing on the date of the Company's Annual Meeting of Stockholders for a particular year and ending on the day immediately prior to the date of the Company's Annual Meeting of Stockholders for the next subsequent year, including Awards granted and cash fees paid by the Company to such Non-Employee Director, will not exceed (i) $750,000 in total value or (ii) in the event such Non-Employee Director is first appointed or elected to the Board during such period, $1,000,000 in total value, in each case calculating the value of any equity awards based on the grant date fair value of such equity awards for financial reporting purposes.

4. OPTIONS AND STOCK APPRECIATION RIGHTS.

Each Option and SAR will have such terms and conditions as determined by the Board. Each Option will be designated in writing as an Incentive Stock Option or Nonstatutory Stock Option at the time of grant; *provided, however*, that if an Option is not so designated, then such Option will be a Nonstatutory Stock Option, and the shares purchased upon exercise of each type of Option will be separately accounted for. Each SAR will be denominated in shares of Common Stock equivalents. The terms and conditions of separate Options and SARs need not be identical; *provided, however*, that each Option Agreement and SAR Agreement will conform (through incorporation of provisions hereof by reference in the Award Agreement or otherwise) to the substance of each of the following provisions:

(a) Term. Subject to Section 3(b) regarding Ten Percent Stockholders, no Option or SAR will be exercisable after the expiration of ten years from the date of grant of such Award or such shorter period specified in the Award Agreement.

(b) Exercise or Strike Price. Subject to Section 3(b) regarding Ten Percent Stockholders, the exercise or strike price of each Option or SAR will not be less than 100% of the Fair Market Value on the date of grant of such Award. Notwithstanding the foregoing, an Option or SAR may be granted with an exercise or strike price lower than 100% of the Fair Market Value on the date of grant of such Award if such Award is granted pursuant to an assumption of or substitution for another option or stock appreciation right pursuant to a Corporate Transaction and in a manner consistent with the provisions of Sections 409A and, if applicable, 424(a) of the Code.

(c) Exercise Procedure and Payment of Exercise Price for Options. In order to exercise an Option, the Participant must provide notice of exercise to the Plan Administrator in accordance with the procedures specified in the Option Agreement or otherwise provided by the Company. The Board has the authority to grant Options that do not permit all of the following methods of payment (or otherwise restrict the ability to use certain methods) and to grant Options that require the consent of the Company to utilize a particular method of payment. The exercise price of an Option may be paid, to the extent permitted by Applicable Law and as determined by the Board, by one or more of the following methods of payment to the extent set forth in the Option Agreement:

(i) by cash or check, bank draft or money order payable to the Company;

(ii) pursuant to a "cashless exercise" program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of the Common Stock subject to the Option, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the exercise price to the Company from the sales proceeds;

(iii) by delivery to the Company (either by actual delivery or attestation) of shares of Common Stock that are already owned by the Participant free and clear of any liens, claims, encumbrances or security interests, with a Fair Market Value on the date of exercise that does not exceed the exercise price, provided that (A) at the time of exercise the Common Stock is publicly traded, (B) any remaining balance of the exercise price not satisfied by such delivery is paid by the Participant in cash or other permitted form of payment, (C) such delivery would not violate any Applicable Law or agreement restricting the redemption of the Common Stock, (D) any certificated shares are endorsed or accompanied by an executed assignment separate from certificate, and (E) such shares have been held by the Participant for any minimum period necessary to avoid adverse accounting treatment as a result of such delivery;

(iv) if the Option is a Nonstatutory Stock Option, by a "net exercise" arrangement pursuant to which the Company will reduce the number of shares of Common Stock issuable upon exercise by the largest whole number of shares with a Fair Market Value on the date of exercise that does not exceed the exercise price, provided that (A) such shares used to pay the exercise price will not be exercisable thereafter and (B) any remaining balance of the exercise price not satisfied by such net exercise is paid by the Participant in cash or other permitted form of payment; or

(v) in any other form of consideration that may be acceptable to the Board and permissible under Applicable Law.

(d) Exercise Procedure and Payment of Appreciation Distribution for SARs. In order to exercise any SAR, the Participant must provide notice of exercise to the Plan Administrator in accordance with the SAR Agreement. The appreciation distribution payable to a Participant upon the exercise of a SAR will not be greater than an amount equal to the excess of (i) the aggregate Fair Market Value on the date of exercise of a number of shares of Common Stock equal to the number of Common Stock equivalents that are vested and being exercised under such SAR, over (ii) the strike price of such SAR. Such appreciation distribution may be paid to the Participant in the form of Common Stock or cash (or any combination of Common Stock and cash) or in any other form of payment, as determined by the Board and specified in the SAR Agreement.

(e) Transferability. Options and SARs may not be transferred to third party financial institutions for value. The Board may impose such additional limitations on the transferability of an Option or SAR as it determines. In the absence of any such determination by the Board, the following restrictions on the transferability of Options and SARs will apply, provided that except as explicitly provided herein, neither an Option nor a SAR may be transferred for consideration and *provided*, *further*, that if an Option is an Incentive Stock Option, such Option may be deemed to be a Nonstatutory Stock Option as a result of such transfer:

(i) Restrictions on Transfer. An Option or SAR will not be transferable, except by will or by the laws of descent and distribution, and will be exercisable during the lifetime of the Participant only by the Participant; *provided*, *however*, that the Board may permit transfer of an Option or SAR in a manner that is not prohibited by applicable tax and securities laws upon the Participant's request, including to a trust if the Participant is considered to be the sole beneficial owner of such trust (as determined under Section 671 of the Code and applicable state law) while such Option or SAR is held in such trust, provided that the Participant and the trustee enter into a transfer and other agreements required by the Company.

(ii) Domestic Relations Orders. Notwithstanding the foregoing, subject to the execution of transfer documentation in a format acceptable to the Company and subject to the approval of the Board or a duly authorized Officer, an Option or SAR may be transferred pursuant to a domestic relations order.

(f) Vesting. The Board may impose such restrictions on or conditions to the vesting and/or exercisability of an Option or SAR as determined by the Board and which may vary. Except as otherwise provided in the Award Agreement or other written agreement between a Participant and the Company or an Affiliate, vesting of Options and SARs will cease upon termination of the Participant's Continuous Service.

(g) Termination of Continuous Service for Cause. Except as explicitly otherwise provided in the Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if a Participant's Continuous Service is terminated for Cause, the Participant's Options and SARs will terminate and be forfeited immediately upon such termination of Continuous Service, and the Participant will be prohibited from exercising any portion (including any vested portion) of such Awards on and after the date of such termination of Continuous Service and the Participant will have no further right, title or interest in such forfeited Award, the shares of Common Stock subject to the forfeited Award, or any consideration in respect of the forfeited Award.

(h) Post-Termination Exercise Period Following Termination of Continuous Service For Reasons Other than Cause. Subject to Section 4(i), if a Participant's Continuous Service terminates for any reason other than for Cause, the Participant may exercise his or her Option or SAR to the extent vested, but only within the following period of time or, if applicable, such other period of time provided in the Award Agreement or other written agreement between a Participant and the Company or an Affiliate; *provided, however*, that in no event may such Award be exercised after the expiration of its maximum term (as set forth in Section 4(a)):

(i) three months following the date of such termination if such termination is a termination without Cause (other than any termination due to the Participant's Disability or death);

(ii) 12 months following the date of such termination if such termination is due to the Participant's Disability;

(iii) 18 months following the date of such termination if such termination is due to the Participant's death; or

(iv) 18 months following the date of the Participant's death if such death occurs following the date of such termination but during the period such Award is otherwise exercisable (as provided in (i) or (ii) above).

Following the date of such termination, to the extent the Participant does not exercise such Award within the applicable Post-Termination Exercise Period (or, if earlier, prior to the expiration of the maximum term of such Award), such unexercised portion of the Award will terminate, and the Participant will have no further right, title or interest in terminated Award, the shares of Common Stock subject to the terminated Award, or any consideration in respect of the terminated Award.

(i) Restrictions on Exercise; Extension of Exercisability. A Participant may not exercise an Option or SAR at any time that the issuance of shares of Common Stock upon such exercise would violate Applicable Law. Except as otherwise provided in the Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if a Participant's Continuous Service terminates for any reason other than for Cause and, at any time during the last thirty days of the applicable Post-Termination Exercise Period the exercise of the Participant's Option or SAR would be prohibited solely because the issuance of shares of Common Stock upon such exercise would violate Applicable Law , then the applicable

Post-Termination Exercise Period will be extended to the last day of the calendar month that commences following the date the Award would otherwise expire, with an additional extension of the exercise period to the last day of the next calendar month to apply if any of the foregoing restrictions apply at any time during such extended exercise period, generally without limitation as to the maximum permitted number of extensions); *provided, however*, that in no event may such Award be exercised after the expiration of its maximum term (as set forth in Section 4(a)).

(j) Non-Exempt Employees. No Option or SAR, whether or not vested, granted to an Employee who is a non-exempt employee for purposes of the Fair Labor Standards Act of 1938, as amended, will be first exercisable for any shares of Common Stock until at least six months following the date of grant of such Award. Notwithstanding the foregoing, in accordance with the provisions of the Worker Economic Opportunity Act, any vested portion of such Award may be exercised earlier than six months following the date of grant of such Award in the event of (i) such Participant's death or Disability, (ii) a Corporate Transaction in which such Award is not assumed, continued or substituted, (iii) a Change in Control, or (iv) such Participant's retirement (as such term may be defined in the Award Agreement or another applicable agreement or, in the absence of any such definition, in accordance with the Company's then current employment policies and guidelines). This Section 4(j) is intended to operate so that any income derived by a non-exempt employee in connection with the exercise or vesting of an Option or SAR will be exempt from his or her regular rate of pay.

(k) Whole Shares. Options and SARs may be exercised only with respect to whole shares of Common Stock or their equivalents.

5. AWARDS OTHER THAN OPTIONS AND STOCK APPRECIATION RIGHTS.

(a) Restricted Stock Awards and RSU Awards. Each Restricted Stock Award and RSU Award will have such terms and conditions as determined by the Board which need not be identical; *provided, however*, that each Restricted Stock Award Agreement and RSU Award Agreement will conform (through incorporation of the provisions hereof by reference in the Award Agreement or otherwise) to the substance of each of the following provisions:

(i) Form of Award.

(1) RSAs: To the extent consistent with the Company's Bylaws, at the Board's election, shares of Common Stock subject to a Restricted Stock Award may be (i) held in book entry form subject to the Company's instructions until such shares become vested or any other restrictions lapse, or (ii) evidenced by a certificate, which certificate will be held in such form and manner as determined by the Board. Unless otherwise determined by the Board, a Participant will have voting and other rights as a stockholder of the Company with respect to any shares subject to a Restricted Stock Award.

(2) RSUs: A RSU Award represents a Participant's right to be issued on a future date the number of shares of Common Stock that is equal to the number of restricted stock units subject to the RSU Award. As a holder of a RSU Award, a Participant is an unsecured creditor of the Company with respect to the Company's unfunded obligation, if any, to issue shares of Common Stock in settlement of such Award and nothing contained in the Plan or

any RSU Agreement, and no action taken pursuant to its provisions, will create or be construed to create a trust of any kind or a fiduciary relationship between a Participant and the Company or an Affiliate or any other person. A Participant will not have voting or any other rights as a stockholder of the Company with respect to any RSU Award (unless and until shares are actually issued in settlement of a vested RSU Award).

(ii) Consideration.

(1) RSA: A Restricted Stock Award may be granted in consideration for (A) cash or check, bank draft or money order payable to the Company, (B) past services to the Company or an Affiliate, or (C) any other form of consideration (including future services) as the Board may determine and permissible under Applicable Law.

(2) RSU: Unless otherwise determined by the Board at the time of grant, a RSU Award will be granted in consideration for the Participant's services to the Company or an Affiliate, such that the Participant will not be required to make any payment to the Company (other than such services) with respect to the grant or vesting of the RSU Award, or the issuance of any shares of Common Stock pursuant to the RSU Award. If, at the time of grant, the Board determines that any consideration must be paid by the Participant (in a form other than the Participant's services to the Company or an Affiliate) upon the issuance of any shares of Common Stock in settlement of the RSU Award, such consideration may be paid in any form of consideration as the Board may determine and permissible under Applicable Law.

(iii) Vesting. The Board may impose such restrictions on or conditions to the vesting of a Restricted Stock Award or RSU Award as determined by the Board and which may vary. Except as otherwise provided in the Award Agreement or other written agreement between a Participant and the Company or an Affiliate, vesting of Restricted Stock Awards and RSU Awards will cease upon termination of the Participant's Continuous Service.

(iv) Termination of Continuous Service. Except as otherwise provided in the Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if a Participant's Continuous Service terminates for any reason, (i) the Company may receive through a forfeiture condition or a repurchase right any or all of the shares of Common Stock held by the Participant under his or her Restricted Stock Award that have not vested as of the date of such termination as set forth in the Restricted Stock Award Agreement and (ii) any portion of his or her RSU Award that has not vested will be forfeited upon such termination and the Participant will have no further right, title or interest in the RSU Award, the shares of Common Stock issuable pursuant to the RSU Award, or any consideration in respect of the RSU Award.

(v) Dividends and Dividend Equivalents. Dividends or dividend equivalents may be paid or credited, as applicable, with respect to any shares of Common Stock subject to a Restricted Stock Award or RSU Award, as determined by the Board and specified in the Award Agreement).

(vi) Settlement of RSU Awards. A RSU Award may be settled by the issuance of shares of Common Stock or cash (or any combination thereof) or in any other form of payment, as determined by the Board and specified in the RSU Award Agreement. At the time of grant, the Board may determine to impose such restrictions or conditions that delay such delivery to a date following the vesting of the RSU Award.

(b) Performance Awards. With respect to any Performance Award, the length of any Performance Period, the Performance Goals to be achieved during the Performance Period, the other terms and conditions of such Award, and the measure of whether and to what degree such Performance Goals have been attained will be determined by the Board.

(c) Other Awards. Other forms of Awards valued in whole or in part by reference to, or otherwise based on, Common Stock, including the appreciation in value thereof (e.g., options or stock rights with an exercise price or strike price less than 100% of the Fair Market Value at the time of grant) may be granted either alone or in addition to Awards provided for under Section 4 and the preceding provisions of this Section 5. Subject to the provisions of the Plan, the Board will have sole and complete discretion to determine the persons to whom and the time or times at which such Other Awards will be granted, the number of shares of Common Stock (or the cash equivalent thereof) to be granted pursuant to such Other Awards and all other terms and conditions of such Other Awards.

6. ADJUSTMENTS UPON CHANGES IN COMMON STOCK; OTHER CORPORATE EVENTS.

(a) Capitalization Adjustments. In the event of a Capitalization Adjustment, the Board shall appropriately and proportionately adjust: (i) the class(es) and maximum number of shares of Common Stock subject to the Plan and the maximum number of shares by which the Share Reserve may annually increase pursuant to Section 2(a), (ii) the class(es) and maximum number of shares that may be issued pursuant to the exercise of Incentive Stock Options pursuant to Section 2(a), and (iii) the class(es) and number of securities and exercise price, strike price or purchase price of Common Stock subject to outstanding Awards. The Board shall make such adjustments, and its determination shall be final, binding and conclusive. Notwithstanding the foregoing, no fractional shares or rights for fractional shares of Common Stock shall be created in order to implement any Capitalization Adjustment. The Board shall determine an appropriate equivalent benefit, if any, for any fractional shares or right to fractional shares that might be created by the adjustments referred to in the preceding provisions of this Section.

(b) Dissolution or Liquidation. Except as otherwise provided in the Award Agreement, in the event of a dissolution or liquidation of the Company, all outstanding Awards (other than Awards consisting of vested and outstanding shares of Common Stock not subject to a forfeiture condition or the Company's right of repurchase) will terminate immediately prior to the completion of such dissolution or liquidation, and the shares of Common Stock subject to the Company's repurchase rights or subject to a forfeiture condition may be repurchased or reacquired by the Company notwithstanding the fact that the holder of such Award is providing Continuous Service, *provided, however*, that the Board may determine to cause some or all Awards to become fully vested, exercisable and/or no longer subject to repurchase or forfeiture (to the extent such Awards have not previously expired or terminated) before the dissolution or liquidation is completed but contingent on its completion.

(c) Corporate Transaction. The following provisions will apply to Awards in the event of a Corporate Transaction unless otherwise provided in the instrument evidencing the Award or any other written agreement between the Company or any Affiliate and the Participant or unless otherwise expressly provided by the Board at the time of grant of an Award.

(i) Awards May Be Assumed. In the event of a Corporate Transaction, any surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) may assume or continue any or all Awards outstanding under the Plan or may substitute similar awards for Awards outstanding under the Plan (including but not limited to, awards to acquire the same consideration paid to the stockholders of the Company pursuant to the Corporate Transaction), and any reacquisition or repurchase rights held by the Company in respect of Common Stock issued pursuant to Awards may be assigned by the Company to the successor of the Company (or the successor's parent company, if any), in connection with such Corporate Transaction. A surviving corporation or acquiring corporation (or its parent) may choose to assume or continue only a portion of an Award or substitute a similar award for only a portion of an Award, or may choose to assume or continue the Awards held by some, but not all Participants. The terms of any assumption, continuation or substitution will be set by the Board.

(ii) Awards Held by Current Participants. In the event of a Corporate Transaction in which the surviving corporation or acquiring corporation (or its parent company) does not assume or continue such outstanding Awards or substitute similar awards for such outstanding Awards, then with respect to Awards that have not been assumed, continued or substituted and that are held by Participants whose Continuous Service has not terminated prior to the effective time of the Corporate Transaction (referred to as the "***Current Participants***"), the vesting of such Awards (and, with respect to Options and Stock Appreciation Rights, the time when such Awards may be exercised) will be accelerated in full to a date prior to the effective time of such Corporate Transaction (contingent upon the effectiveness of the Corporate Transaction) as the Board determines (or, if the Board does not determine such a date, to the date that is five (5) days prior to the effective time of the Corporate Transaction), and such Awards will terminate if not exercised (if applicable) at or prior to the effective time of the Corporate Transaction, and any reacquisition or repurchase rights held by the Company with respect to such Awards will lapse (contingent upon the effectiveness of the Corporate Transaction). With respect to Performance Awards which will accelerate vesting in connection with a Corporate Transaction pursuant to this subsection (ii) and which Awards have multiple vesting levels depending on the level of performance, unless otherwise provided in the Award Agreement, such Performance Awards will accelerate vesting at 100% of the target level. With respect to Awards which will accelerate vesting in connection with a Corporate Transaction pursuant to this subsection (ii) and which Awards are settled in the form of a cash payment, such cash payment will be made no later than thirty (30) days following the effectiveness of the Corporate Transaction.

(iii) Awards Held by Persons other than Current Participants. In the event of a Corporate Transaction in which the surviving corporation or acquiring corporation (or its parent company) does not assume or continue such outstanding Awards or substitute similar awards for such outstanding Awards, then with respect to Awards that have not been assumed, continued or substituted and that are held by persons other than Current Participants, such Awards will terminate if not exercised (if applicable) prior to the effective time of the Corporate Transaction; *provided, however*, that any reacquisition or repurchase rights held by the Company with respect to such Awards will not terminate and may continue to be exercised notwithstanding the Corporate Transaction.

(iv) Payment for Awards in Lieu of Exercise. Notwithstanding the foregoing, in the event an Award will terminate if not exercised prior to the effective time of a Corporate Transaction, the Board may provide, in its sole discretion, that the holder of such Award may not exercise such Award but will receive a payment, in such form as may be determined by the Board, equal in value, at the effective time, to the excess, if any, of (A) the value of the property the Participant would have received upon the exercise of the Award (including, at the discretion of the Board, any unvested portion of such Award), over (B) any exercise price payable by such holder in connection with such exercise.

(d) Appointment of Stockholder Representative. As a condition to the receipt of an Award under this Plan, a Participant will be deemed to have agreed that the Award will be subject to the terms of any agreement governing a Corporate Transaction involving the Company, including, without limitation, a provision for the appointment of a stockholder representative that is authorized to act on the Participant's behalf with respect to any escrow, indemnities and any contingent consideration.

(e) No Restriction on Right to Undertake Transactions. The grant of any Award under the Plan and the issuance of shares pursuant to any Award does not affect or restrict in any way the right or power of the Company or the stockholders of the Company to make or authorize any adjustment, recapitalization, reorganization or other change in the Company's capital structure or its business, any merger or consolidation of the Company, any issue of stock or of options, rights or options to purchase stock or of bonds, debentures, preferred or prior preference stocks whose rights are superior to or affect the Common Stock or the rights thereof or which are convertible into or exchangeable for Common Stock, or the dissolution or liquidation of the Company, or any sale or transfer of all or any part of its assets or business, or any other corporate act or proceeding, whether of a similar character or otherwise.

7. ADMINISTRATION.

(a) Administration by Board. The Board will administer the Plan unless and until the Board delegates administration of the Plan to a Committee or Committees, as provided in subsection (c) below.

(b) Powers of Board. The Board will have the power, subject to, and within the limitations of, the express provisions of the Plan:

(i) To determine from time to time (A) which of the persons eligible under the Plan will be granted Awards; (B) when and how each Award will be granted; (C) what type or combination of types of Award will be granted; (D) the provisions of each Award granted (which need not be identical), including the time or times when a person will be permitted to receive an issuance of Common Stock or other payment pursuant to an Award; (E) the number of shares of Common Stock or cash equivalent with respect to which an Award will be granted to each such person; (F) the Fair Market Value applicable to an Award; and (G) the terms of any Performance Award that is not valued in whole or in part by reference to, or otherwise based on, the Common Stock, including the amount of cash payment or other property that may be earned and the timing of payment.

(ii) To construe and interpret the Plan and Awards granted under it, and to establish, amend and revoke rules and regulations for its administration. The Board, in the exercise of this power, may correct any defect, omission or inconsistency in the Plan or in any Award Agreement, in a manner and to the extent it deems necessary or expedient to make the Plan or Award fully effective.

(iii) To settle all controversies regarding the Plan and Awards granted under it.

(iv) To accelerate the time at which an Award may first be exercised or the time during which an Award or any part thereof will vest, notwithstanding the provisions in the Award Agreement stating the time at which it may first be exercised or the time during which it will vest.

(v) To prohibit the exercise of any Option, SAR or other exercisable Award during a period of up to thirty days prior to the consummation of any pending stock dividend, stock split, combination or exchange of shares, merger, consolidation or other distribution (other than normal cash dividends) of Company assets to stockholders, or any other change affecting the shares of Common Stock or the share price of the Common Stock including any Corporate Transaction, for reasons of administrative convenience.

(vi) To suspend or terminate the Plan at any time. Suspension or termination of the Plan will not Materially Impair rights and obligations under any Award granted while the Plan is in effect except with the written consent of the affected Participant.

(vii) To amend the Plan in any respect the Board deems necessary or advisable; *provided, however,* that stockholder approval will be required for any amendment to the extent required by Applicable Law. Except as provided above, rights under any Award granted before amendment of the Plan will not be Materially Impaired by any amendment of the Plan unless (1) the Company requests the consent of the affected Participant, and (2) such Participant consents in writing.

(viii) To submit any amendment to the Plan for stockholder approval.

(ix) To approve forms of Award Agreements for use under the Plan and to amend the terms of any one or more Awards, including, but not limited to, amendments to provide terms more favorable to the Participant than previously provided in the Award Agreement, subject to any specified limits in the Plan that are not subject to Board discretion; *provided however*, that, a Participant's rights under any Award will not be Materially Impaired by any such amendment unless (A) the Company requests the consent of the affected Participant, and (B) such Participant consents in writing.

(x) Generally, to exercise such powers and to perform such acts as the Board deems necessary or expedient to promote the best interests of the Company and that are not in conflict with the provisions of the Plan or Awards.

(xi) To adopt such procedures and sub-plans as are necessary or appropriate to permit and/or facilitate participation in the Plan by, or take advantage of specific tax treatment for Awards granted to, Employees, Directors or Consultants who are foreign nationals or employed outside the United States (provided that Board approval will not be necessary for immaterial modifications to the Plan or any Award Agreement to ensure or facilitate compliance with the laws of the relevant foreign jurisdiction).

(xii) To effect, at any time and from time to time, subject to the consent of any Participant whose Award is Materially Impaired by such action, (A) the reduction of the exercise price (or strike price) of any outstanding Option or SAR under the Plan; (B) the cancellation of any outstanding Option or SAR under the Plan and the grant in substitution therefor of (1) a new Option or SAR under the Plan or another equity plan of the Company covering the same or a different number of shares of Common Stock, (2) a Restricted Stock Award, (3) a RSU Award, (4) an Other Award, (5) cash and/or (6) other valuable consideration (as determined by the Board); or (C) any other action that is treated as a repricing under generally accepted accounting principles.

(c) Delegation to Committee.

(i) General. The Board may delegate some or all of the administration of the Plan to a Committee or Committees. If administration of the Plan is delegated to a Committee, the Committee will have, in connection with the administration of the Plan, the powers theretofore possessed by the Board that have been delegated to the Committee, including the power to delegate to another Committee or a subcommittee of the Committee any of the administrative powers the Committee is authorized to exercise (and references in this Plan to the Board will thereafter be to the Committee or subcommittee), subject, however, to such resolutions, not inconsistent with the provisions of the Plan, as may be adopted from time to time by the Board. Each Committee may retain the authority to concurrently administer the Plan with Committee or subcommittee to which it has delegated its authority hereunder and may, at any time, revest in such Committee some or all of the powers previously delegated. The Board may retain the authority to concurrently administer the Plan with any Committee and may, at any time, revest in the Board some or all of the powers previously delegated.

(ii) Rule 16b-3 Compliance. To the extent an Award is intended to qualify for the exemption from Section 16(b) of the Exchange Act that is available under Rule 16b-3 of the Exchange Act, the Award will be granted by the Board or a Committee that consists solely of two or more Non-Employee Directors, as determined under Rule 16b-3(b)(3) of the Exchange Act and thereafter any action establishing or modifying the terms of the Award will be approved by the Board or a Committee meeting such requirements to the extent necessary for such exemption to remain available. In addition, the Board or the Committee, in its sole discretion, may delegate to a Committee who need not be Non-Employee Directors the authority to grant Awards to eligible persons who are not then subject to Section 16 of the Exchange Act.

(d) Effect of Board's Decision. All determinations, interpretations and constructions made by the Board or any Committee in good faith will not be subject to review by any person and will be final, binding and conclusive on all persons.

(e) Delegation to an Officer. The Board or any Committee may delegate to one or more Officers the authority to do one or both of the following (i) designate Employees who are not Officers to be recipients of Options and SARs (and, to the extent permitted by Applicable Law, other types of Awards) and, to the extent permitted by Applicable Law, the terms thereof, and (ii) determine the number of shares of Common Stock to be subject to such Awards granted to such Employees; *provided*, *however,* that the resolutions or charter adopted by the Board or any Committee evidencing such delegation will specify the total number of shares of Common Stock that may be subject to the Awards granted by such Officer and that such Officer may not grant an Award to himself or herself. Any such Awards will be granted on the applicable form of Award Agreement most recently approved for use by the Board or the Committee, unless otherwise provided in the resolutions approving the delegation authority. Notwithstanding anything to the contrary herein, neither the Board nor any Committee may delegate to an Officer who is acting solely in the capacity of an Officer (and not also as a Director) the authority to determine the Fair Market Value.

8. TAX WITHHOLDING

(a) Withholding Authorization. As a condition to acceptance of any Award under the Plan, a Participant authorizes withholding from payroll and any other amounts payable to such Participant, and otherwise agrees to make adequate provision for (including), any sums required to satisfy any U.S. federal, state, local and/or foreign tax or social insurance contribution withholding obligations of the Company or an Affiliate, if any, which arise in connection with the exercise, vesting or settlement of such Award, as applicable. Accordingly, a Participant may not be able to exercise an Award even though the Award is vested, and the Company shall have no obligation to issue shares of Common Stock subject to an Award, unless and until such obligations are satisfied.

(b) Satisfaction of Withholding Obligation. To the extent permitted by the terms of an Award Agreement, the Company may, in its sole discretion, satisfy any U.S. federal, state, local and/or foreign tax or social insurance withholding obligation relating to an Award by any of the following means or by a combination of such means: (i) causing the Participant to tender a cash payment; (ii) withholding shares of Common Stock from the shares of Common Stock issued or otherwise issuable to the Participant in connection with the Award; (iii) withholding cash from an Award settled in cash; (iv) withholding payment from any amounts otherwise payable to the Participant; (v) by allowing a Participant to effectuate a "cashless exercise" pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board; or (vi) by such other method as may be set forth in the Award Agreement.

(c) No Obligation to Notify or Minimize Taxes; No Liability to Claims. Except as required by Applicable Law, the Company has no duty or obligation to any Participant to advise such holder as to the time or manner of exercising such Award. Furthermore, the Company has no duty or obligation to warn or otherwise advise such holder of a pending termination or expiration of an Award or a possible period in which the Award may not be exercised. The

Company has no duty or obligation to minimize the tax consequences of an Award to the holder of such Award and will not be liable to any holder of an Award for any adverse tax consequences to such holder in connection with an Award. As a condition to accepting an Award under the Plan, each Participant (i) agrees to not make any claim against the Company, or any of its Officers, Directors, Employees or Affiliates related to tax liabilities arising from such Award or other Company compensation and (ii) acknowledges that such Participant was advised to consult with his or her own personal tax, financial and other legal advisors regarding the tax consequences of the Award and has either done so or knowingly and voluntarily declined to do so. Additionally, each Participant acknowledges any Option or SAR granted under the Plan is exempt from Section 409A only if the exercise or strike price is at least equal to the "fair market value" of the Common Stock on the date of grant as determined by the Internal Revenue Service and there is no other impermissible deferral of compensation associated with the Award. Additionally, as a condition to accepting an Option or SAR granted under the Plan, each Participant agrees not make any claim against the Company, or any of its Officers, Directors, Employees or Affiliates in the event that the Internal Revenue Service asserts that such exercise price or strike price is less than the "fair market value" of the Common Stock on the date of grant as subsequently determined by the Internal Revenue Service.

(d) Withholding Indemnification. As a condition to accepting an Award under the Plan, in the event that the amount of the Company's and/or its Affiliate's withholding obligation in connection with such Award was greater than the amount actually withheld by the Company and/or its Affiliates, each Participant agrees to indemnify and hold the Company and/or its Affiliates harmless from any failure by the Company and/or its Affiliates to withhold the proper amount.

9. MISCELLANEOUS.

(a) Source of Shares. The stock issuable under the Plan will be shares of authorized but unissued or reacquired Common Stock, including shares repurchased by the Company on the open market or otherwise.

(b) Use of Proceeds from Sales of Common Stock. Proceeds from the sale of shares of Common Stock pursuant to Awards will constitute general funds of the Company.

(c) Corporate Action Constituting Grant of Awards. Corporate action constituting a grant by the Company of an Award to any Participant will be deemed completed as of the date of such corporate action, unless otherwise determined by the Board, regardless of when the instrument, certificate, or letter evidencing the Award is communicated to, or actually received or accepted by, the Participant. In the event that the corporate records (e.g., Board consents, resolutions or minutes) documenting the corporate action approving the grant contain terms (e.g., exercise price, vesting schedule or number of shares) that are inconsistent with those in the Award Agreement or related grant documents as a result of a clerical error in the Award Agreement or related grant documents, the corporate records will control and the Participant will have no legally binding right to the incorrect term in the Award Agreement or related grant documents.

(d) Stockholder Rights. No Participant will be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares of Common Stock subject to such Award unless and until (i) such Participant has satisfied all requirements for exercise of the Award pursuant to its terms, if applicable, and (ii) the issuance of the Common Stock subject to such Award is reflected in the records of the Company.

(e) No Employment or Other Service Rights. Nothing in the Plan, any Award Agreement or any other instrument executed thereunder or in connection with any Award granted pursuant thereto will confer upon any Participant any right to continue to serve the Company or an Affiliate in the capacity in effect at the time the Award was granted or affect the right of the Company or an Affiliate to terminate at will and without regard to any future vesting opportunity that a Participant may have with respect to any Award (i) the employment of an Employee with or without notice and with or without cause, (ii) the service of a Consultant pursuant to the terms of such Consultant's agreement with the Company or an Affiliate, or (iii) the service of a Director pursuant to the Bylaws of the Company or an Affiliate, and any applicable provisions of the corporate law of the state or foreign jurisdiction in which the Company or the Affiliate is incorporated, as the case may be. Further, nothing in the Plan, any Award Agreement or any other instrument executed thereunder or in connection with any Award will constitute any promise or commitment by the Company or an Affiliate regarding the fact or nature of future positions, future work assignments, future compensation or any other term or condition of employment or service or confer any right or benefit under the Award or the Plan unless such right or benefit has specifically accrued under the terms of the Award Agreement and/or Plan.

(f) Change in Time Commitment. In the event a Participant's regular level of time commitment in the performance of his or her services for the Company and any Affiliates is reduced (for example, and without limitation, if the Participant is an Employee of the Company and the Employee has a change in status from a full-time Employee to a part-time Employee or takes an extended leave of absence) after the date of grant of any Award to the Participant, the Board may determine, to the extent permitted by Applicable Law, to (i) make a corresponding reduction in the number of shares or cash amount subject to any portion of such Award that is scheduled to vest or become payable after the date of such change in time commitment, and (ii) in lieu of or in combination with such a reduction, extend the vesting or payment schedule applicable to such Award. In the event of any such reduction, the Participant will have no right with respect to any portion of the Award that is so reduced or extended.

(g) Execution of Additional Documents. As a condition to accepting an Award under the Plan, the Participant agrees to execute any additional documents or instruments necessary or desirable, as determined in the Plan Administrator's sole discretion, to carry out the purposes or intent of the Award, or facilitate compliance with securities and/or other regulatory requirements, in each case at the Plan Administrator's request.

(h) Electronic Delivery and Participation. Any reference herein or in an Award Agreement to a "written" agreement or document will include any agreement or document delivered electronically, filed publicly at www.sec.gov (or any successor website thereto) or posted on the Company's intranet (or other shared electronic medium controlled by the Company to which the Participant has access). By accepting any Award the Participant consents to receive

documents by electronic delivery and to participate in the Plan through any on-line electronic system established and maintained by the Plan Administrator or another third party selected by the Plan Administrator. The form of delivery of any Common Stock (*e.g.*, a stock certificate or electronic entry evidencing such shares) shall be determined by the Company.

(i) Clawback/Recovery. All Awards granted under the Plan will be subject to recoupment in accordance with any clawback policy that the Company is required to adopt pursuant to the listing standards of any national securities exchange or association on which the Company's securities are listed or as is otherwise required by the Dodd-Frank Wall Street Reform and Consumer Protection Act or other Applicable Law and any clawback policy that the Company otherwise adopts, to the extent applicable and permissible under Applicable Law. In addition, the Board may impose such other clawback, recovery or recoupment provisions in an Award Agreement as the Board determines necessary or appropriate, including but not limited to a reacquisition right in respect of previously acquired shares of Common Stock or other cash or property upon the occurrence of Cause. No recovery of compensation under such a clawback policy will be an event giving rise to a Participant's right to voluntary terminate employment upon a "resignation for good reason," or for a "constructive termination" or any similar term under any plan of or agreement with the Company.

(j) Securities Law Compliance. A Participant will not be issued any shares in respect of an Award unless either (i) the shares are registered under the Securities Act; or (ii) the Company has determined that such issuance would be exempt from the registration requirements of the Securities Act. Each Award also must comply with other Applicable Law governing the Award, and a Participant will not receive such shares if the Company determines that such receipt would not be in material compliance with Applicable Law.

(k) Transfer or Assignment of Awards; Issued Shares. Except as expressly provided in the Plan or the form of Award Agreement, Awards granted under the Plan may not be transferred or assigned by the Participant. After the vested shares subject to an Award have been issued, or in the case of Restricted Stock and similar awards, after the issued shares have vested, the holder of such shares is free to assign, hypothecate, donate, encumber or otherwise dispose of any interest in such shares provided that any such actions are in compliance with the provisions herein, the terms of the Trading Policy and Applicable Law.

(l) Effect on Other Employee Benefit Plans. The value of any Award granted under the Plan, as determined upon grant, vesting or settlement, shall not be included as compensation, earnings, salaries, or other similar terms used when calculating any Participant's benefits under any employee benefit plan sponsored by the Company or any Affiliate, except as such plan otherwise expressly provides. The Company expressly reserves its rights to amend, modify, or terminate any of the Company's or any Affiliate's employee benefit plans.

(m) Deferrals. To the extent permitted by Applicable Law, the Board, in its sole discretion, may determine that the delivery of Common Stock or the payment of cash, upon the exercise, vesting or settlement of all or a portion of any Award may be deferred and may also establish programs and procedures for deferral elections to be made by Participants. Deferrals by will be made in accordance with the requirements of Section 409A.

(n) Section 409A. Unless otherwise expressly provided for in an Award Agreement, the Plan and Award Agreements will be interpreted to the greatest extent possible in a manner that makes the Plan and the Awards granted hereunder exempt from Section 409A, and, to the extent not so exempt, in compliance with the requirements of Section 409A. If the Board determines that any Award granted hereunder is not exempt from and is therefore subject to Section 409A, the Award Agreement evidencing such Award will incorporate the terms and conditions necessary to avoid the consequences specified in Section 409A(a)(1) of the Code, and to the extent an Award Agreement is silent on terms necessary for compliance, such terms are hereby incorporated by reference into the Award Agreement. Notwithstanding anything to the contrary in this Plan (and unless the Award Agreement specifically provides otherwise), if the shares of Common Stock are publicly traded, and if a Participant holding an Award that constitutes "deferred compensation" under Section 409A is a "specified employee" for purposes of Section 409A, no distribution or payment of any amount that is due because of a "separation from service" (as defined in Section 409A without regard to alternative definitions thereunder) will be issued or paid before the date that is six months and one day following the date of such Participant's "separation from service" or, if earlier, the date of the Participant's death, unless such distribution or payment can be made in a manner that complies with Section 409A, and any amounts so deferred will be paid in a lump sum on the day after such six month period elapses, with the balance paid thereafter on the original schedule.

(o) CHOICE OF LAW. This Plan and any controversy arising out of or relating to this Plan shall be governed by, and construed in accordance with, the internal laws of the State of California, without regard to conflict of law principles that would result in any application of any law other than the law of the State of California.

10. COVENANTS OF THE COMPANY.

(a) Securities Law Compliance. The Company will seek to obtain from each regulatory commission or agency, as may be deemed to be necessary, having jurisdiction over the Plan such authority as may be required to grant Awards and to issue and sell shares of Common Stock upon exercise or vesting of the Awards; *provided, however*, that this undertaking will not require the Company to register under the Securities Act the Plan, any Award or any Common Stock issued or issuable pursuant to any such Award. If, after reasonable efforts and at a reasonable cost, the Company is unable to obtain from any such regulatory commission or agency the authority that counsel for the Company deems necessary or advisable for the lawful issuance and sale of Common Stock under the Plan, the Company will be relieved from any liability for failure to issue and sell Common Stock upon exercise or vesting of such Awards unless and until such authority is obtained. A Participant is not eligible for the grant of an Award or the subsequent issuance of Common Stock pursuant to the Award if such grant or issuance would be in violation of any Applicable Law.

11. ADDITIONAL RULES FOR AWARDS SUBJECT TO SECTION 409A.

(a) Application. Unless the provisions of this Section of the Plan are expressly superseded by the provisions in the form of Award Agreement, the provisions of this Section shall apply and shall supersede anything to the contrary set forth in the Award Agreement for a Non-Exempt Award.

(b) Non-Exempt Awards Subject to Non-Exempt Severance Arrangements. To the extent a Non-Exempt Award is subject to Section 409A due to application of a Non-Exempt Severance Arrangement, the following provisions of this subsection (b) apply.

(i) If the Non-Exempt Award vests in the ordinary course during the Participant's Continuous Service in accordance with the vesting schedule set forth in the Award Agreement, and does not accelerate vesting under the terms of a Non-Exempt Severance Arrangement, in no event will the shares be issued in respect of such Non-Exempt Award any later than the later of: (i) December 31st of the calendar year that includes the applicable vesting date, or (ii) the 60th day that follows the applicable vesting date.

(ii) If vesting of the Non-Exempt Award accelerates under the terms of a Non-Exempt Severance Arrangement in connection with the Participant's Separation from Service, and such vesting acceleration provisions were in effect as of the date of grant of the Non-Exempt Award and, therefore, are part of the terms of such Non-Exempt Award as of the date of grant, then the shares will be earlier issued in settlement of such Non-Exempt Award upon the Participant's Separation from Service in accordance with the terms of the Non-Exempt Severance Arrangement, but in no event later than the 60th day that follows the date of the Participant's Separation from Service. However, if at the time the shares would otherwise be issued the Participant is subject to the distribution limitations contained in Section 409A applicable to "specified employees," as defined in Section 409A(a)(2)(B)(i) of the Code, such shares shall not be issued before the date that is six months following the date of such Participant's Separation from Service, or, if earlier, the date of the Participant's death that occurs within such six month period.

(iii) If vesting of a Non-Exempt Award accelerates under the terms of a Non-Exempt Severance Arrangement in connection with a Participant's Separation from Service, and such vesting acceleration provisions were not in effect as of the date of grant of the Non-Exempt Award and, therefore, are not a part of the terms of such Non-Exempt Award on the date of grant, then such acceleration of vesting of the Non-Exempt Award shall not accelerate the issuance date of the shares, but the shares shall instead be issued on the same schedule as set forth in the Grant Notice as if they had vested in the ordinary course during the Participant's Continuous Service, notwithstanding the vesting acceleration of the Non-Exempt Award. Such issuance schedule is intended to satisfy the requirements of payment on a specified date or pursuant to a fixed schedule, as provided under Treasury Regulations Section 1.409A-3(a)(4).

(c) Treatment of Non-Exempt Awards Upon a Corporate Transaction for Employees and Consultants. The provisions of this subsection (c) shall apply and shall supersede anything to the contrary set forth in the Plan with respect to the permitted treatment of any Non-Exempt Award in connection with a Corporate Transaction if the Participant was either an Employee or Consultant upon the applicable date of grant of the Non-Exempt Award.

(i) Vested Non-Exempt Awards. The following provisions shall apply to any Vested Non-Exempt Award in connection with a Corporate Transaction:

(1) If the Corporate Transaction is also a Section 409A Change in Control then the Acquiring Entity may not assume, continue or substitute the Vested Non-Exempt Award. Upon the Section 409A Change of Control the settlement of the Vested Non-Exempt Award will automatically be accelerated and the shares will be immediately issued in respect of the Vested Non-Exempt Award. Alternatively, the Company may instead provide that the Participant will receive a cash settlement equal to the Fair Market Value of the shares that would otherwise be issued to the Participant upon the Section 409A Change of Control.

(2) If the Corporate Transaction is not also a Section 409A Change of Control, then the Acquiring Entity must either assume, continue or substitute each Vested Non-Exempt Award. The shares to be issued in respect of the Vested Non-Exempt Award shall be issued to the Participant by the Acquiring Entity on the same schedule that the shares would have been issued to the Participant if the Corporate Transaction had not occurred. In the Acquiring Entity's discretion, in lieu of an issuance of shares, the Acquiring Entity may instead substitute a cash payment on each applicable issuance date, equal to the Fair Market Value of the shares that would otherwise be issued to the Participant on such issuance dates, with the determination of the Fair Market Value of the shares made on the date of the Corporate Transaction.

(ii) Unvested Non-Exempt Awards. The following provisions shall apply to any Unvested Non-Exempt Award unless otherwise determined by the Board pursuant to subsection (e) of this Section.

(1) In the event of a Corporate Transaction, the Acquiring Entity shall assume, continue or substitute any Unvested Non-Exempt Award. Unless otherwise determined by the Board, any Unvested Non-Exempt Award will remain subject to the same vesting and forfeiture restrictions that were applicable to the Award prior to the Corporate Transaction. The shares to be issued in respect of any Unvested Non-Exempt Award shall be issued to the Participant by the Acquiring Entity on the same schedule that the shares would have been issued to the Participant if the Corporate Transaction had not occurred. In the Acquiring Entity's discretion, in lieu of an issuance of shares, the Acquiring Entity may instead substitute a cash payment on each applicable issuance date, equal to the Fair Market Value of the shares that would otherwise be issued to the Participant on such issuance dates, with the determination of Fair Market Value of the shares made on the date of the Corporate Transaction.

(2) If the Acquiring Entity will not assume, substitute or continue any Unvested Non-Exempt Award in connection with a Corporate Transaction, then such Award shall automatically terminate and be forfeited upon the Corporate Transaction with no consideration payable to any Participant in respect of such forfeited Unvested Non-Exempt Award. Notwithstanding the foregoing, to the extent permitted and in compliance with the requirements of Section 409A, the Board may in its discretion determine to elect to accelerate the vesting and settlement of the Unvested Non-Exempt Award upon the Corporate Transaction, or instead substitute a cash payment equal to the Fair Market Value of such shares that would otherwise be issued to the Participant, as further provided in subsection (e)(ii) below. In the absence of such discretionary election by the Board, any Unvested Non-Exempt Award shall be forfeited without payment of any consideration to the affected Participants if the Acquiring Entity will not assume, substitute or continue the Unvested Non-Exempt Awards in connection with the Corporate Transaction.

(3) The foregoing treatment shall apply with respect to all Unvested Non-Exempt Awards upon any Corporate Transaction, and regardless of whether or not such Corporate Transaction is also a Section 409A Change of Control.

(d) Treatment of Non-Exempt Awards Upon a Corporate Transaction for Non-Employee Directors. The following provisions of this subsection (d) shall apply and shall supersede anything to the contrary that may be set forth in the Plan with respect to the permitted treatment of a Non-Exempt Director Award in connection with a Corporate Transaction.

(i) If the Corporate Transaction is also a Section 409A Change of Control then the Acquiring Entity may not assume, continue or substitute the Non-Exempt Director Award. Upon the Section 409A Change of Control the vesting and settlement of any Non-Exempt Director Award will automatically be accelerated and the shares will be immediately issued to the Participant in respect of the Non-Exempt Director Award. Alternatively, the Company may provide that the Participant will instead receive a cash settlement equal to the Fair Market Value of the shares that would otherwise be issued to the Participant upon the Section 409A Change of Control pursuant to the preceding provision.

(ii) If the Corporate Transaction is not also a Section 409A Change of Control, then the Acquiring Entity must either assume, continue or substitute the Non-Exempt Director Award. Unless otherwise determined by the Board, the Non-Exempt Director Award will remain subject to the same vesting and forfeiture restrictions that were applicable to the Award prior to the Corporate Transaction. The shares to be issued in respect of the Non-Exempt Director Award shall be issued to the Participant by the Acquiring Entity on the same schedule that the shares would have been issued to the Participant if the Corporate Transaction had not occurred. In the Acquiring Entity's discretion, in lieu of an issuance of shares, the Acquiring Entity may instead substitute a cash payment on each applicable issuance date, equal to the Fair Market Value of the shares that would otherwise be issued to the Participant on such issuance dates, with the determination of Fair Market Value made on the date of the Corporate Transaction.

(e) If the RSU Award is a Non-Exempt Award, then the provisions in this Section 11(e) shall apply and supersede anything to the contrary that may be set forth in the Plan or the Award Agreement with respect to the permitted treatment of such Non-Exempt Award:

(i) Any exercise by the Board of discretion to accelerate the vesting of a Non-Exempt Award shall not result in any acceleration of the scheduled issuance dates for the shares in respect of the Non-Exempt Award unless earlier issuance of the shares upon the applicable vesting dates would be in compliance with the requirements of Section 409A.

(ii) The Company explicitly reserves the right to earlier settle any Non-Exempt Award to the extent permitted and in compliance with the requirements of Section 409A, including pursuant to any of the exemptions available in Treasury Regulations Section 1.409A-3(j)(4)(ix).

(iii) To the extent the terms of any Non-Exempt Award provide that it will be settled upon a Change in Control or Corporate Transaction, to the extent it is required for compliance with the requirements of Section 409A, the Change in Control or Corporate Transaction event triggering settlement must also constitute a Section 409A Change of Control. To the extent the terms of a Non-Exempt Award provides that it will be settled upon a termination of employment or termination of Continuous Service, to the extent it is required for compliance with the requirements of Section 409A, the termination event triggering settlement must also constitute a Separation From Service. However, if at the time the shares would otherwise be issued to a Participant in connection with a "separation from service" such Participant is subject to the distribution limitations contained in Section 409A applicable to "specified employees," as defined in Section 409A(a)(2)(B)(i) of the Code, such shares shall not be issued before the date that is six months following the date of the Participant's Separation From Service, or, if earlier, the date of the Participant's death that occurs within such six month period.

(iv) The provisions in this subsection (e) for delivery of the shares in respect of the settlement of a RSU Award that is a Non-Exempt Award are intended to comply with the requirements of Section 409A so that the delivery of the shares to the Participant in respect of such Non-Exempt Award will not trigger the additional tax imposed under Section 409A, and any ambiguities herein will be so interpreted.

12. SEVERABILITY.

If all or any part of the Plan or any Award Agreement is declared by any court or governmental authority to be unlawful or invalid, such unlawfulness or invalidity shall not invalidate any portion of the Plan or such Award Agreement not declared to be unlawful or invalid. Any Section of the Plan or any Award Agreement (or part of such a Section) so declared to be unlawful or invalid shall, if possible, be construed in a manner which will give effect to the terms of such Section or part of a Section to the fullest extent possible while remaining lawful and valid.

13. TERMINATION OF THE PLAN.

The Board may suspend or terminate the Plan at any time.

No Incentive Stock Options may be granted after the tenth anniversary of the earlier of: (i) the Adoption Date, or (ii) the date the Plan is approved by the Company's stockholders.

No Awards may be granted under the Plan while the Plan is suspended or after it is terminated.

14. DEFINITIONS.

As used in the Plan, the following definitions apply to the capitalized terms indicated below:

(a) "***Acquiring Entity***" means the surviving or acquiring corporation (or its parent company) in connection with a Corporate Transaction.

(b) "***Adoption Date***" means the date the Plan is first approved by the Board or Compensation Committee.

(c) "***Affiliate***" means, at the time of determination, any "parent" or "subsidiary" of the Company as such terms are defined in Rule 405 promulgated under the Securities Act. The Board may determine the time or times at which "parent" or "subsidiary" status is determined within the foregoing definition.

(d) "***Applicable Law***" means shall mean any applicable securities, federal, state, foreign, material local or municipal or other law, statute, constitution, principle of common law, resolution, ordinance, code, edict, decree, rule, listing rule, regulation, judicial decision, ruling or requirement issued, enacted, adopted, promulgated, implemented or otherwise put into effect by or under the authority of any Governmental Body (including under the authority of any applicable self-regulating organization such as the Nasdaq Stock Market, New York Stock Exchange or the Financial Industry Regulatory Authority).

(e) "***Award***" means any right to receive Common Stock, cash or other property granted under the Plan (including an Incentive Stock Option, a Nonstatutory Stock Option, a Restricted Stock Award, a RSU Award, a SAR, a Performance Award or any Other Award).

(f) "***Award Agreement***" means a written agreement between the Company and a Participant evidencing the terms and conditions of an Award. The Award Agreement generally consists of the Grant Notice and the agreement containing the written summary of the general terms and conditions applicable to the Award and which is provided to a Participant along with the Grant Notice.

(g) "***Board***" means the Board of Directors of the Company (or its designee). Any decision or determination made by the Board shall be a decision or determination that is made in the sole discretion of the Board (or its designee), and such decision or determination shall be final and binding on all Participants.

(h) "***Capitalization Adjustment***" means any change that is made in, or other events that occur with respect to, the Common Stock subject to the Plan or subject to any Award after the Effective Date without the receipt of consideration by the Company through merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, stock split, reverse stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or any similar equity restructuring transaction, as that term is used in Statement of Financial Accounting Standards Board Accounting Standards Codification Topic 718 (or any successor thereto). Notwithstanding the foregoing, the conversion of any convertible securities of the Company will not be treated as a Capitalization Adjustment.

(i) "***Cause***" has the meaning ascribed to such term in any written agreement between the Participant and the Company defining such term and, in the absence of such agreement, such term means, with respect to a Participant, the occurrence of any of the following events: (i) such Participant's attempted commission of, or participation in, a fraud or act of dishonesty against the Company; (ii) such Participant's intentional, material violation of any contract or agreement between the Participant and the Company or of any statutory duty owed to the Company; (iii) such Participant's unauthorized use or disclosure of the Company's confidential information or trade secrets; or (iv) such Participant's gross misconduct. The determination that a termination of the Participant's Continuous Service is either for Cause or without Cause will be made by the Board with respect to Participants who are executive officers of the Company and by the Company's Chief Executive Officer with respect to Participants who are not executive officers of the Company. Any determination by the Company that the Continuous Service of a Participant was terminated with or without Cause for the purposes of outstanding Awards held by such Participant will have no effect upon any determination of the rights or obligations of the Company or such Participant for any other purpose.

(j) "***Change in Control***" or "***Change of Control***" means the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events; provided, however, to the extent necessary to avoid adverse personal income tax consequences to the Participant in connection with an Award, also constitutes a Section 409A Change of Control:

(i) any Exchange Act Person becomes the Owner, directly or indirectly, of securities of the Company representing more than 50% of the combined voting power of the Company's then outstanding securities other than by virtue of a merger, consolidation or similar transaction. Notwithstanding the foregoing, a Change in Control shall not be deemed to occur (A) on account of the acquisition of securities of the Company directly from the Company, (B) on account of the acquisition of securities of the Company by an investor, any affiliate thereof or any other Exchange Act Person that acquires the Company's securities in a transaction or series of related transactions the primary purpose of which is to obtain financing for the Company through the issuance of equity securities, or (C) solely because the level of Ownership held by any Exchange Act Person (the "*Subject Person*") exceeds the designated percentage threshold of the outstanding voting securities as a result of a repurchase or other acquisition of voting securities by the Company reducing the number of shares outstanding, provided that if a Change in Control would occur (but for the operation of this sentence) as a result of the acquisition of voting securities by the Company, and after such share acquisition, the Subject Person becomes the Owner of any additional voting securities that, assuming the repurchase or other acquisition had not occurred, increases the percentage of the then outstanding voting securities Owned by the Subject Person over the designated percentage threshold, then a Change in Control shall be deemed to occur;

(ii) there is consummated a merger, consolidation or similar transaction involving (directly or indirectly) the Company and, immediately after the consummation of such merger, consolidation or similar transaction, the stockholders of the Company immediately prior thereto do not Own, directly or indirectly, either (A) outstanding voting securities

representing more than 50% of the combined outstanding voting power of the surviving Entity in such merger, consolidation or similar transaction or (B) more than 50% of the combined outstanding voting power of the parent of the surviving Entity in such merger, consolidation or similar transaction, in each case in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such transaction;

(iii) there is consummated a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries, other than a sale, lease, license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries to an Entity, more than 50% of the combined voting power of the voting securities of which are Owned by stockholders of the Company in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such sale, lease, license or other disposition; or

(iv) individuals who, on the date the Plan is adopted by the Board, are members of the Board (the "***Incumbent Board***") cease for any reason to constitute at least a majority of the members of the Board; *provided, however*, that if the appointment or election (or nomination for election) of any new Board member was approved or recommended by a majority vote of the members of the Incumbent Board then still in office, such new member shall, for purposes of this Plan, be considered as a member of the Incumbent Board.

Notwithstanding the foregoing or any other provision of this Plan, (A) the term Change in Control shall not include a sale of assets, merger or other transaction effected exclusively for the purpose of changing the domicile of the Company, and (B) the definition of Change in Control (or any analogous term) in an individual written agreement between the Company or any Affiliate and the Participant shall supersede the foregoing definition with respect to Awards subject to such agreement; *provided, however*, that if no definition of Change in Control or any analogous term is set forth in such an individual written agreement, the foregoing definition shall apply.

(k) "***Code***" means the Internal Revenue Code of 1986, as amended, including any applicable regulations and guidance thereunder.

(l) "***Committee***" means the Compensation Committee and any other committee of Directors to whom authority has been delegated by the Board or Compensation Committee in accordance with the Plan.

(m) "***Common Stock***" means the common stock of the Company.

(n) "***Company***" means Poseida Therapeutics, Inc. a Delaware corporation.

(o) *"Compensation Committee"* means the Compensation Committee of the Board.

(p) "***Consultant***" means any person, including an advisor, who is (i) engaged by the Company or an Affiliate to render consulting or advisory services and is compensated for such services, or (ii) serving as a member of the board of directors of an Affiliate and is compensated for such services. However, service solely as a Director, or payment of a fee for such service, will not cause a Director to be considered a "Consultant" for purposes of the Plan.

Notwithstanding the foregoing, a person is treated as a Consultant under this Plan only if a Form S-8 Registration Statement under the Securities Act is available to register either the offer or the sale of the Company's securities to such person.

(q) "***Continuous Service***" means that the Participant's service with the Company or an Affiliate, whether as an Employee, Director or Consultant, is not interrupted or terminated. A change in the capacity in which the Participant renders service to the Company or an Affiliate as an Employee, Director or Consultant or a change in the Entity for which the Participant renders such service, provided that there is no interruption or termination of the Participant's service with the Company or an Affiliate, will not terminate a Participant's Continuous Service; *provided, however,* that if the Entity for which a Participant is rendering services ceases to qualify as an Affiliate, as determined by the Board, such Participant's Continuous Service will be considered to have terminated on the date such Entity ceases to qualify as an Affiliate. For example, a change in status from an Employee of the Company to a Consultant of an Affiliate or to a Director will not constitute an interruption of Continuous Service. To the extent permitted by law, the Board or the chief executive officer of the Company, in that party's sole discretion, may determine whether Continuous Service will be considered interrupted in the case of (i) any leave of absence approved by the Board or chief executive officer, including sick leave, military leave or any other personal leave, or (ii) transfers between the Company, an Affiliate, or their successors. Notwithstanding the foregoing, a leave of absence will be treated as Continuous Service for purposes of vesting in an Award only to such extent as may be provided in the Company's leave of absence policy, in the written terms of any leave of absence agreement or policy applicable to the Participant, or as otherwise required by law. In addition, to the extent required for exemption from or compliance with Section 409A, the determination of whether there has been a termination of Continuous Service will be made, and such term will be construed, in a manner that is consistent with the definition of "separation from service" as defined under Treasury Regulation Section 1.409A-1(h) (without regard to any alternative definition thereunder).

(r) "***Corporate Transaction***" means the consummation, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) a sale or other disposition of all or substantially all, as determined by the Board, of the consolidated assets of the Company and its Subsidiaries;

(ii) a sale or other disposition of at least 50% of the outstanding securities of the Company;

(iii) a merger, consolidation or similar transaction following which the Company is not the surviving corporation; or

(iv) a merger, consolidation or similar transaction following which the Company is the surviving corporation but the shares of Common Stock outstanding immediately preceding the merger, consolidation or similar transaction are converted or exchanged by virtue of the merger, consolidation or similar transaction into other property, whether in the form of securities, cash or otherwise.

(s) "***Director***" means a member of the Board.

(t) ***"determine" or "determined"*** means as determined by the Board or the Committee (or its designee) in its sole discretion.

(u) "***Disability***" means, with respect to a Participant, such Participant is unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or which has lasted or can be expected to last for a continuous period of not less than 12 months, as provided in Section 22(e)(3) of the Code, and will be determined by the Board on the basis of such medical evidence as the Board deems warranted under the circumstances.

(v) "***Effective Date***" means immediately prior to the IPO Date, provided this Plan is approved by the Company's stockholders prior to the IPO Date.

(w) "***Employee***" means any person employed by the Company or an Affiliate. However, service solely as a Director, or payment of a fee for such services, will not cause a Director to be considered an "Employee" for purposes of the Plan.

(x) "***Employer***" means the Company or the Affiliate of the Company that employs the Participant.

(y) "***Entity***" means a corporation, partnership, limited liability company or other entity.

(z) "***Exchange Act***" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

(aa) "***Exchange Act Person***" means any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act), except that "Exchange Act Person" will not include (i) the Company or any Subsidiary of the Company, (ii) any employee benefit plan of the Company or any Subsidiary of the Company or any trustee or other fiduciary holding securities under an employee benefit plan of the Company or any Subsidiary of the Company, (iii) an underwriter temporarily holding securities pursuant to a registered public offering of such securities, (iv) an Entity Owned, directly or indirectly, by the stockholders of the Company in substantially the same proportions as their Ownership of stock of the Company; or (v) any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act) that, as of the Effective Date, is the Owner, directly or indirectly, of securities of the Company representing more than 50% of the combined voting power of the Company's then outstanding securities.

(bb) "***Fair Market Value***" means, as of any date, unless otherwise determined by the Board, the value of the Common Stock (as determined on a per share or aggregate basis, as applicable) determined as follows:

(i) If the Common Stock is listed on any established stock exchange or traded on any established market, the Fair Market Value will be the closing sales price for such stock as quoted on such exchange or market (or the exchange or market with the greatest volume of trading in the Common Stock) on the date of determination, as reported in a source the Board deems reliable.

(ii) If there is no closing sales price for the Common Stock on the date of determination, then the Fair Market Value will be the closing selling price on the last preceding date for which such quotation exists.

(iii) In the absence of such markets for the Common Stock, or if otherwise determined by the Board, the Fair Market Value will be determined by the Board in good faith and in a manner that complies with Sections 409A and 422 of the Code.

(cc) "***Governmental Body***" means any: (a) nation, state, commonwealth, province, territory, county, municipality, district or other jurisdiction of any nature; (b) federal, state, local, municipal, foreign or other government; (c) governmental or regulatory body, or quasi-governmental body of any nature (including any governmental division, department, administrative agency or bureau, commission, authority, instrumentality, official, ministry, fund, foundation, center, organization, unit, body or Entity and any court or other tribunal, and for the avoidance of doubt, any Tax authority) or other body exercising similar powers or authority; or (d) self-regulatory organization (including the Nasdaq Stock Market, New York Stock Exchange and the Financial Industry Regulatory Authority).

(dd) ***"Grant Notice"*** means the notice provided to a Participant that he or she has been granted an Award under the Plan and which includes the name of the Participant, the type of Award, the date of grant of the Award, number of shares of Common Stock subject to the Award or potential cash payment right, (if any), the vesting schedule for the Award (if any) and other key terms applicable to the Award.

(ee) "***Incentive Stock Option***" means an option granted pursuant to Section 4 of the Plan that is intended to be, and qualifies as, an "incentive stock option" within the meaning of Section 422 of the Code.

(ff) "***IPO Date***" means the date of the underwriting agreement between the Company and the underwriter(s) managing the initial public offering of the Common Stock, pursuant to which the Common Stock is priced for the initial public offering.

(gg) ***"Materially Impair"*** means any amendment to the terms of the Award that materially adversely affects the Participant's rights under the Award. A Participant's rights under an Award will not be deemed to have been Materially Impaired by any such amendment if the Board, in its sole discretion, determines that the amendment, taken as a whole, does not materially impair the Participant's rights. For example, the following types of amendments to the terms of an Award do not Materially Impair the Participant's rights under the Award: (i) imposition of reasonable restrictions on the minimum number of shares subject to an Option that may be exercised; (ii) to maintain the qualified status of the Award as an Incentive Stock Option under Section 422 of the Code; (iii) to change the terms of an Incentive Stock Option in a manner that disqualifies, impairs or otherwise affects the qualified status of the Award as an Incentive Stock Option under Section 422 of the Code; (iv) to clarify the manner of exemption from, or to bring the Award into compliance with or qualify it for an exemption from, Section 409A; or (v) to comply with other Applicable Laws.

(hh) "***Non-Employee Director***" means a Director who either (i) is not a current employee or officer of the Company or an Affiliate, does not receive compensation, either directly or indirectly, from the Company or an Affiliate for services rendered as a consultant or in any capacity other than as a Director (except for an amount as to which disclosure would not be required under Item 404(a) of Regulation S-K promulgated pursuant to the Securities Act ("***Regulation S-K***")), does not possess an interest in any other transaction for which disclosure would be required under Item 404(a) of Regulation S-K, and is not engaged in a business relationship for which disclosure would be required pursuant to Item 404(b) of Regulation S-K; or (ii) is otherwise considered a "non-employee director" for purposes of Rule 16b-3.

(ii) ***"Non-Exempt Award"*** means any Award that is subject to, and not exempt from, Section 409A, including as the result of (i) a deferral of the issuance of the shares subject to the Award which is elected by the Participant or imposed by the Company, (ii) the terms of any Non-Exempt Severance Agreement.

(jj) ***"Non-Exempt Director Award"*** means a Non-Exempt Award granted to a Participant who was a Director but not an Employee on the applicable grant date.

(kk) ***Non-Exempt Severance Arrangement*** means a severance arrangement or other agreement between the Participant and the Company that provides for acceleration of vesting of an Award and issuance of the shares in respect of such Award upon the Participant's termination of employment or separation from service (as such term is defined in Section 409A(a)(2)(A)(i) of the Code (and without regard to any alternative definition thereunder) ("***Separation from Service***") and such severance benefit does not satisfy the requirements for an exemption from application of Section 409A provided under Treasury Regulations Section 1.409A-1(b)(4), 1.409A-1(b)(9) or otherwise.

(ll) "***Nonstatutory Stock Option***" means any option granted pursuant to Section 4 of the Plan that does not qualify as an Incentive Stock Option.

(mm) "***Officer***" means a person who is an officer of the Company within the meaning of Section 16 of the Exchange Act.

(nn) "***Option***" means an Incentive Stock Option or a Nonstatutory Stock Option to purchase shares of Common Stock granted pursuant to the Plan.

(oo) "***Option Agreement***" means a written agreement between the Company and the Optionholder evidencing the terms and conditions of the Option grant. The Option Agreement includes the Grant Notice for the Option and the agreement containing the written summary of the general terms and conditions applicable to the Option and which is provided to a Participant along with the Grant Notice. Each Option Agreement will be subject to the terms and conditions of the Plan.

(pp) "***Optionholder***" means a person to whom an Option is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Option.

(qq) "***Other Award***" means an award based in whole or in part by reference to the Common Stock which is granted pursuant to the terms and conditions of Section 5(c).

(rr) "***Other Award Agreement***" means a written agreement between the Company and a holder of an Other Award evidencing the terms and conditions of an Other Award grant. Each Other Award Agreement will be subject to the terms and conditions of the Plan.

(ss) "***Own,***" "***Owned,***" "***Owner,***" "***Ownership***" means that a person or Entity will be deemed to "Own," to have "Owned," to be the "Owner" of, or to have acquired "Ownership" of securities if such person or Entity, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has or shares voting power, which includes the power to vote or to direct the voting, with respect to such securities.

(tt) "***Participant***" means an Employee, Director or Consultant to whom an Award is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Award.

(uu) "***Performance Award***" means an Award that may vest or may be exercised or a cash award that may vest or become earned and paid contingent upon the attainment during a Performance Period of certain Performance Goals and which is granted under the terms and conditions of Section 5(b) pursuant to such terms as are approved by the Board. In addition, to the extent permitted by Applicable Law and set forth in the applicable Award Agreement, the Board may determine that cash or other property may be used in payment of Performance Awards. Performance Awards that are settled in cash or other property are not required to be valued in whole or in part by reference to, or otherwise based on, the Common Stock.

(vv) "***Performance Criteria***" means the one or more criteria that the Board will select for purposes of establishing the Performance Goals for a Performance Period. The Performance Criteria that will be used to establish such Performance Goals may be based on any measure of performance selected by the Board.

(ww) "***Performance Goals***" means, for a Performance Period, the one or more goals established by the Board for the Performance Period based upon the Performance Criteria. Performance Goals may be based on a Company-wide basis, with respect to one or more business units, divisions, Affiliates, or business segments, and in either absolute terms or relative to the performance of one or more comparable companies or the performance of one or more relevant indices. Unless specified otherwise by the Board (i) in the Award Agreement at the time the Award is granted or (ii) in such other document setting forth the Performance Goals at the time the Performance Goals are established, the Board will appropriately make adjustments in the method of calculating the attainment of Performance Goals for a Performance Period as follows: (1) to exclude restructuring and/or other nonrecurring charges; (2) to exclude exchange rate effects; (3) to exclude the effects of changes to generally accepted accounting principles; (4) to exclude the effects of any statutory adjustments to corporate tax rates; (5) to exclude the effects of items that are "unusual" in nature or occur "infrequently" as determined under generally accepted accounting principles; (6) to exclude the dilutive effects of acquisitions or joint ventures; (7) to assume that any business divested by the Company achieved performance objectives at targeted levels during the balance of a Performance Period following such

divestiture; (8) to exclude the effect of any change in the outstanding shares of common stock of the Company by reason of any stock dividend or split, stock repurchase, reorganization, recapitalization, merger, consolidation, spin-off, combination or exchange of shares or other similar corporate change, or any distributions to common stockholders other than regular cash dividends; (9) to exclude the effects of stock based compensation and the award of bonuses under the Company's bonus plans; (10) to exclude costs incurred in connection with potential acquisitions or divestitures that are required to be expensed under generally accepted accounting principles; and (11) to exclude the goodwill and intangible asset impairment charges that are required to be recorded under generally accepted accounting principles. In addition, the Board retains the discretion to reduce or eliminate the compensation or economic benefit due upon attainment of Performance Goals and to define the manner of calculating the Performance Criteria it selects to use for such Performance Period. Partial achievement of the specified criteria may result in the payment or vesting corresponding to the degree of achievement as specified in the Award Agreement or the written terms of a Performance Cash Award.

(xx) "***Performance Period***" means the period of time selected by the Board over which the attainment of one or more Performance Goals will be measured for the purpose of determining a Participant's right to vesting or exercise of an Award. Performance Periods may be of varying and overlapping duration, at the sole discretion of the Board.

(yy) "***Plan***" means this Poseida Therapeutics, Inc. 2020 Equity Incentive Plan, as amended from time to time.

(zz) *"Plan Administrator"* means the person, persons, and/or third-party administrator designated by the Company to administer the day to day operations of the Plan and the Company's other equity incentive programs.

(aaa) "***Post-Termination Exercise Period***" means the period following termination of a Participant's Continuous Service within which an Option or SAR is exercisable, as specified in Section 4(h).

(bbb) "***Prior Plan's Available Reserve***" means the number of shares available for the grant of new awards under the Prior Plan as of the Effective Date.

(ccc) "***Prior Plan***" means the Poseida Therapeutics, Inc. 2015 Equity Incentive Plan, as amended.

(ddd) "***Prospectus***" means the document containing the Plan information specified in Section 10(a) of the Securities Act.

(eee) "***Restricted Stock Award***" or "***RSA***" means an Award of shares of Common Stock which is granted pursuant to the terms and conditions of Section 5(a).

(fff) "***Restricted Stock Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Award evidencing the terms and conditions of a Restricted Stock Award grant. The Restricted Stock Award Agreement includes the Grant Notice for the Restricted Stock Award and the agreement containing the written summary of the general terms and conditions applicable to the Restricted Stock Award and which is provided to a Participant along with the Grant Notice. Each Restricted Stock Award Agreement will be subject to the terms and conditions of the Plan.

(ggg) "***Returning Shares***" means shares subject to outstanding stock awards granted under the Prior Plan and that following the Effective Date: (A) are not issued because such stock award or any portion thereof expires or otherwise terminates without all of the shares covered by such stock award having been issued; (B) are not issued because such stock award or any portion thereof is settled in cash; (C) are forfeited back to or repurchased by the Company because of the failure to meet a contingency or condition required for the vesting of such shares; (D) are withheld or reacquired to satisfy the exercise, strike or purchase price; or (E) are withheld or reacquired to satisfy a tax withholding obligation.

(hhh) "***RSU Award***" or "***RSU***" means an Award of restricted stock units representing the right to receive an issuance of shares of Common Stock which is granted pursuant to the terms and conditions of Section 5(a).

(iii) "***RSU Award Agreement***" means a written agreement between the Company and a holder of a RSU Award evidencing the terms and conditions of a RSU Award grant. The RSU Award Agreement includes the Grant Notice for the RSU Award and the agreement containing the written summary of the general terms and conditions applicable to the RSU Award and which is provided to a Participant along with the Grant Notice. Each RSU Award Agreement will be subject to the terms and conditions of the Plan.

(jjj) "***Rule 16b-3***" means Rule 16b-3 promulgated under the Exchange Act or any successor to Rule 16b-3, as in effect from time to time.

(kkk) "***Rule 405***" means Rule 405 promulgated under the Securities Act.

(lll) "***Section 409A***" means Section 409A of the Code and the regulations and other guidance thereunder.

(mmm) "***Section 409A Change of Control***" means a change in the ownership or effective control of the Company, or in the ownership of a substantial portion of the Company's assets, as provided in Section 409A(a)(2)(A)(v) of the Code and Treasury Regulations Section 1.409A-3(i)(5) (without regard to any alternative definition thereunder).

(nnn) ***"Securities Act***" means the Securities Act of 1933, as amended.

(ooo) ***"Share Reserve"*** means the number of shares available for issuance under the Plan as set forth in Section 2(a).

(ppp) "***Stock Appreciation Right***" or "***SAR***" means a right to receive the appreciation on Common Stock that is granted pursuant to the terms and conditions of Section 4.

(qqq) "***SAR Agreement***" means a written agreement between the Company and a holder of a SAR evidencing the terms and conditions of a SAR grant. The SAR Agreement includes the Grant Notice for the SAR and the agreement containing the written summary of the general terms and conditions applicable to the SAR and which is provided to a Participant along with the Grant Notice. Each SAR Agreement will be subject to the terms and conditions of the Plan.

(rrr) "***Subsidiary***" means, with respect to the Company, (i) any corporation of which more than 50% of the outstanding capital stock having ordinary voting power to elect a majority of the board of directors of such corporation (irrespective of whether, at the time, stock of any other class or classes of such corporation will have or might have voting power by reason of the happening of any contingency) is at the time, directly or indirectly, Owned by the Company, and (ii) any partnership, limited liability company or other entity in which the Company has a direct or indirect interest (whether in the form of voting or participation in profits or capital contribution) of more than 50%.

(sss) "***Ten Percent Stockholder***" means a person who Owns (or is deemed to Own pursuant to Section 424(d) of the Code) stock possessing more than 10% of the total combined voting power of all classes of stock of the Company or any Affiliate.

(ttt) "***Trading Policy***" means the Company's policy permitting certain individuals to sell Company shares only during certain "window" periods and/or otherwise restricts the ability of certain individuals to transfer or encumber Company shares, as in effect from time to time.

(uuu) "***Unvested Non-Exempt Award***" means the portion of any Non-Exempt Award that had not vested in accordance with its terms upon or prior to the date of any Corporate Transaction.

(vvv) "***Vested Non-Exempt Award***" means the portion of any Non-Exempt Award that had vested in accordance with its terms upon or prior to the date of a Corporate Transaction.

POSEIDA THERAPEUTICS, INC.
STOCK OPTION GRANT NOTICE
(2020 EQUITY INCENTIVE PLAN)

Poseida Therapeutics, Inc. (the "***Company***"), pursuant to its 2020 Equity Incentive Plan (the "***Plan***"), has granted to Optionholder an option to purchase the number of shares of the Common Stock set forth below (the "***Option***"). The Option is subject to all of the terms and conditions as set forth herein and in the Plan, the Stock Option Agreement and the Notice of Exercise, all of which are attached hereto and incorporated herein in their entirety. Capitalized terms not explicitly defined herein but defined in the Plan or the Stock Option Agreement shall have the meanings set forth in the Plan or the Stock Option Agreement, as applicable.

Optionholder:	_____
Date of Grant:	_____
Vesting Commencement Date:	_____
Number of Shares of Common Stock Subject to Option:	_____
Exercise Price (Per Share):	_____
Total Exercise Price:	_____
Expiration Date:	_____

Type of Grant: **[**Incentive Stock Option[1]] OR [Nonstatutory Stock Option]

Exercise and Vesting Schedule: Subject to the Optionholder's Continuous Service through each applicable vesting date, the Option will vest as follows:

[1/8th of the shares vest and become exercisable on the six month anniversary of the Vesting Commencement Date; the balance of the shares vest and become exercisable in a series of forty-two (42) successive equal monthly installments measured from the six month anniversary of the Vesting Commencement Date on the same date of the month as the Vesting Commencement Date.]

Optionholder Acknowledgements: By Optionholder's signature below or by electronic acceptance or authentication in a form authorized by the Company, Optionholder understands and agrees that the Option is governed by this Stock Option Grant Notice, and the provisions of the Plan and the Stock Option Agreement and the Notice of Exercise, all of which are made a part of this document. By accepting this Option, Optionholder consents to receive this Grant Notice, the Stock Option Agreement, the Plan, the Prospectus and any other Plan-related documents by electronic delivery and to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company. Optionholder represents that he or she has read and is familiar with the provisions of the Plan, the Stock Option Agreement and the Prospectus, a copy of which has been separately provided to Optionholder. Optionholder acknowledges and agrees that this Grant Notice and the Stock Option Agreement (together, the "***Option Agreement***") may not be modified, amended or revised except in a writing signed by Optionholder and a duly authorized officer of the Company. Optionholder further acknowledges that in the event of any conflict between the provisions in this Grant Notice, the Option Agreement, the Notice of Exercise, or the Prospectus and the terms of the Plan, the terms of the Plan shall control. Optionholder further acknowledges that the Option Agreement sets forth the entire understanding between Optionholder and the Company regarding the acquisition of Common Stock and supersedes all prior oral and written agreements, promises and/or representations on that subject with the exception of other equity awards previously granted to Optionholder and any written employment agreement, offer letter, severance agreement, written severance plan or policy, or other written agreement between the Company and Optionholder in each case that specifies the terms that should govern this Option.

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1 If this is an Incentive Stock Option, it (plus other outstanding Incentive Stock Options) cannot be first *exercisable* for more than $100,000 in value (measured by exercise price) in any calendar year. Any excess over $100,000 is a Nonstatutory Stock Option.

Counterparts may be delivered via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, Uniform Electronic Transactions Act or other applicable law) or other transmission method and any counterpart so delivered will be deemed to have been duly and validly delivered and be valid and effective for all purposes.

POSEIDA THERAPEUTICS, INC.

By: _____
Signature
Title: _____
Date: _____

OPTIONHOLDER:

_____
Signature
Date: _____

ATTACHMENTS: Stock Option Agreement, 2020 Equity Incentive Plan, Notice of Exercise

ATTACHMENT I

STOCK OPTION AGREEMENT

POSEIDA THERAPEUTICS, INC.
2020 EQUITY INCENTIVE PLAN

STOCK OPTION AGREEMENT

As reflected by your Stock Option Grant Notice ("***Grant Notice***") Poseida Therapeutics, Inc. (the "***Company***") has granted you an option under its 2020 Equity Incentive Plan (the "***Plan***") to purchase a number of shares of Common Stock at the exercise price indicated in your Grant Notice (the "***Option***"). Capitalized terms not explicitly defined in this Agreement but defined in the Grant Notice or the Plan shall have the meanings set forth in the Grant Notice or Plan, as applicable. The terms of your Option as specified in the Grant Notice and this Stock Option Agreement constitute your Option Agreement.

The general terms and conditions applicable to your Option are as follows:

1. GOVERNING PLAN DOCUMENT. Your Option is subject to all the provisions of the Plan, including but not limited to the provisions in:

(a) Section 6 regarding the impact of a Capitalization Adjustment, dissolution, liquidation, or Corporate Transaction on your Option;

(b) Section 9(e) regarding the Company's retained rights to terminate your Continuous Service notwithstanding the grant of the Option; and

(c) Section 8(c) regarding the tax consequences of your Option.

Your Option is further subject to all interpretations, amendments, rules and regulations, which may from time to time be promulgated and adopted pursuant to the Plan. In the event of any conflict between the Option Agreement and the provisions of the Plan, the provisions of the Plan shall control.

2. EXERCISE.

(a) You may generally exercise the vested portion of your Option for whole shares of Common Stock at any time during its term by delivery of payment of the exercise price and applicable withholding taxes and other required documentation to the Plan Administrator in accordance with the exercise procedures established by the Plan Administrator, which may include an electronic submission. Please review Sections 4(i), 4(j) and 7(b)(v) of the Plan, which may restrict or prohibit your ability to exercise your Option during certain periods.

(b) To the extent permitted by Applicable Law, you may pay your Option exercise price as follows:

(i) cash, check, bank draft or money order;

(ii) subject to Company and/or Committee consent at the time of exercise, pursuant to a "cashless exercise" program as further described in Section 4(c)(ii) of the Plan if at the time of exercise the Common Stock is publicly traded;

(iii) subject to Company and/or Committee consent at the time of exercise, by delivery of previously owned shares of Common Stock as further described in Section 4(c)(iii) of the Plan; or

(iv) subject to Company and/or Committee consent at the time of exercise, if the Option is a Nonstatutory Stock Option, by a "net exercise" arrangement as further described in Section 4(c)(iv) of the Plan.

(c) By accepting your Option, you agree that you will not sell, dispose of, transfer, make any short sale of, grant any option for the purchase of, or enter into any hedging or similar transaction with the same economic effect as a sale with respect to any shares of Common Stock or other securities of the Company held by you, for a period of one hundred eighty (180) days following the effective date of a registration statement of the Company filed under the Securities Act or such longer period as the underwriters or the Company will request to facilitate compliance with FINRA Rule 2241 or any successor or similar rules or regulation (the "***Lock-Up Period***"); *provided, however*, that nothing contained in this section will prevent the exercise of a repurchase option, if any, in favor of the Company during the Lock-Up Period. You further agree to execute and deliver such other agreements as may be reasonably requested by the Company or the underwriters that are consistent with the foregoing or that are necessary to give further effect thereto. In order to enforce the foregoing covenant, the Company may impose stop-transfer instructions with respect to your shares of Common Stock until the end of such period. You also agree that any transferee of any shares of Common Stock (or other securities) of the Company held by you will be bound by this Section 2(c). The underwriters of the Company's stock are intended third party beneficiaries of this Section 2(c) and will have the right, power and authority to enforce the provisions hereof as though they were a party hereto.

3. TERM. You may not exercise your Option before the commencement of its term or after its term expires. The term of your Option commences on the Date of Grant and expires upon the earliest of the following:

(a) immediately upon the termination of your Continuous Service for Cause;

(b) three months after the termination of your Continuous Service for any reason other than Cause, Disability or death;

(c) 12 months after the termination of your Continuous Service due to your Disability;

(d) 18 months after your death if you die during your Continuous Service;

(e) immediately upon a Corporate Transaction if the Board has determined that the Option will terminate in connection with a Corporate Transaction,

(f) the Expiration Date indicated in your Grant Notice; or

(g) the day before the 10th anniversary of the Date of Grant.

Notwithstanding the foregoing, if you die during the period provided in Section 3(b) or 3(c) above, the term of your Option shall not expire until the earlier of (i) eighteen months after your death, (ii) upon any termination of the Option in connection with a Corporate Transaction, (iii) the Expiration Date indicated in your Grant Notice, or (iv) the day before the tenth anniversary of the Date of Grant. Additionally, the Post-Termination Exercise Period of your Option may be extended as provided in Section 4(i) of the Plan.

To obtain the federal income tax advantages associated with an Incentive Stock Option, the Code requires that at all times beginning on the date of grant of your Option and ending on the day three months before the date of your Option's exercise, you must be an employee of the Company or an Affiliate, except in the event of your death or Disability. If the Company provides for the extended exercisability of your Option under certain circumstances for your benefit, your Option will not necessarily be treated as an Incentive Stock Option if you exercise your Option more than three months after the date your employment terminates.

4. WITHHOLDING OBLIGATIONS. As further provided in Section 8 of the Plan: (a) you may not exercise your Option unless the applicable tax withholding obligations are satisfied, and (b) at the time you exercise your Option, in whole or in part, or at any time thereafter as requested by the Company, you hereby authorize withholding from payroll and any other amounts payable to you, and otherwise agree to make adequate provision for (including by means of a "cashless exercise" pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board to the extent permitted by the Company), any sums required to satisfy the federal, state, local and foreign tax withholding obligations, if any, which arise in connection with the exercise of your Option in accordance with the withholding procedures established by the Company. Accordingly, you may not be able to exercise your Option even though the Option is vested, and the Company shall have no obligation to issue shares of Common Stock subject to your Option, unless and until such obligations are satisfied. In the event that the amount of the Company's withholding obligation in connection with your Option was greater than the amount actually withheld by the Company, you agree to indemnify and hold the Company harmless from any failure by the Company to withhold the proper amount.

5. INCENTIVE STOCK OPTION DISPOSITION REQUIREMENT. If your Option is an Incentive Stock Option, you must notify the Company in writing within 15 days after the date of any disposition of any of the shares of the Common Stock issued upon exercise of your Option that occurs within two years after the date of your Option grant or within one year after such shares of Common Stock are transferred upon exercise of your Option.

6. TRANSFERABILITY. Except as otherwise provided in Section 4(e) of the Plan, your Option is not transferable, except by will or by the applicable laws of descent and distribution, and is exercisable during your life only by you.

7. CORPORATE TRANSACTION. Your Option is subject to the terms of any agreement governing a Corporate Transaction involving the Company, including, without limitation, a provision for the appointment of a stockholder representative that is authorized to act on your behalf with respect to any escrow, indemnities and any contingent consideration.

8. NO LIABILITY FOR TAXES. As a condition to accepting the Option, you hereby (a) agree to not make any claim against the Company, or any of its Officers, Directors, Employees or Affiliates related to tax liabilities arising from the Option or other Company compensation and (b) acknowledge that you were advised to consult with your own personal tax, financial and other legal advisors regarding the tax consequences of the Option and have either done so or knowingly and voluntarily declined to do so. Additionally, you acknowledge that the Option is exempt from Section 409A only if the exercise price is at least equal to the "fair market value" of the Common Stock on the date of grant as determined by the Internal Revenue Service and there is no other impermissible deferral of compensation associated with the Option. Additionally, as a condition to accepting the Option, you agree not make any claim against the Company, or any of its Officers, Directors, Employees or Affiliates in the event that the Internal Revenue Service asserts that such exercise is less than the "fair market value" of the Common Stock on the date of grant as subsequently determined by the Internal Revenue Service.

9. SEVERABILITY. If any part of this Option Agreement or the Plan is declared by any court or governmental authority to be unlawful or invalid, such unlawfulness or invalidity will not invalidate any portion of this Option Agreement or the Plan not declared to be unlawful or invalid. Any Section of this Option Agreement (or part of such a Section) so declared to be unlawful or invalid will, if possible, be construed in a manner which will give effect to the terms of such Section or part of a Section to the fullest extent possible while remaining lawful and valid

10. OTHER DOCUMENTS. You hereby acknowledge receipt of or the right to receive a document providing the information required by Rule 428(b)(1) promulgated under the Securities Act, which includes the Prospectus. In addition, you acknowledge receipt of the Company's Trading Policy.

11. QUESTIONS. If you have questions regarding these or any other terms and conditions applicable to your Option, including a summary of the applicable federal income tax consequences please see the Prospectus. You can request a paper copy of the Prospectus from the Plan Administrator.

* * * *

ATTACHMENT II

2020 EQUITY INCENTIVE PLAN

ATTACHMENT III

NOTICE OF EXERCISE

POSEIDA THERAPEUTICS, INC.
(2020 EQUITY INCENTIVE PLAN)

NOTICE OF EXERCISE

POSEIDA THERAPEUTICS, INC.
9390 TOWNE CENTRE DRIVE, SUITE 200
SAN DIEGO, CA 92121

Date of Exercise: _____

This constitutes notice to Poseida Therapeutics, Inc. (the "***Company***") that I elect to purchase the below number of shares of Common Stock of the Company (the "***Shares***") by exercising my Option for the price set forth below. Capitalized terms not explicitly defined in this Notice of Exercise but defined in the Grant Notice, Option Agreement or 2020 Equity Incentive Plan (the "***Plan***") shall have the meanings set forth in the Grant Notice, Option Agreement or Plan, as applicable. Use of certain payment methods is subject to Company and/or Committee consent and certain additional requirements set forth in the Option Agreement and the Plan.

Type of option (check one):	Incentive ☐	Nonstatutory ☐
Date of Grant:	_____	
Number of Shares as to which Option is exercised:	_____	
Certificates to be issued in name of:	_____	
Total exercise price:	$ _____	
Cash, check, bank draft or money order delivered herewith:	$ _____	
Value of _____ Shares delivered herewith:	$ _____	
Regulation T Program (cashless exercise)	$ _____	
Value of _____ Shares pursuant to net exercise:	$ _____	

By this exercise, I agree (i) to provide such additional documents as you may require pursuant to the terms of the Plan, (ii) to satisfy the tax withholding obligations, if any, relating to the exercise of this Option as set forth in the Option Agreement, and (iii) if this exercise relates to an incentive stock option, to notify you in writing within 15 days after the date of any disposition of any of the Shares issued upon exercise of this Option that occurs within two years after the Date of Grant or within one year after such Shares are issued upon exercise of this Option.

I further agree that I will not sell, dispose of, transfer, make any short sale of, grant any option for the purchase of, or enter into any hedging or similar transaction with the same economic effect as a sale with respect to any shares of Common Stock or other securities of the Company that I hold, for a period of one hundred eighty (180) days following the effective date of a registration statement of the Company filed under the Securities Act or such longer period as the underwriters or the Company will request to facilitate compliance with FINRA Rule 2241 or any successor or similar rules or regulation (the "***Lock-Up Period***"); *provided*, *however*, that nothing contained in this paragraph will prevent the exercise of a repurchase option, if any, in favor of the Company during the Lock-Up Period. I further agree to execute and deliver such other agreements as may be reasonably requested by the Company or the underwriters that are consistent with the foregoing or that are necessary to give further effect thereto. I further agree that in order to enforce the foregoing covenant, the Company may impose stop-transfer instructions with respect to shares of Common Stock that I hold until the end of such period. I also agree that any transferee of any shares of Common Stock (or other securities) of the Company that I hold will be bound by this paragraph. The underwriters of the Company's stock are intended third party beneficiaries of this paragraph and will have the right, power and authority to enforce the provisions hereof as though they were a party hereto.

Very truly yours,

_____

POSEIDA THERAPEUTICS, INC.
NON-EMPLOYEE DIRECTOR STOCK OPTION GRANT NOTICE
(2020 EQUITY INCENTIVE PLAN)

Poseida Therapeutics, Inc. (the "***Company***"), pursuant to its 2020 Equity Incentive Plan (the "***Plan***"), has granted to Optionholder an option to purchase the number of shares of the Common Stock set forth below (the "***Option***"). The Option is subject to all of the terms and conditions as set forth herein and in the Plan, the Stock Option Agreement and the Notice of Exercise, all of which are attached hereto and incorporated herein in their entirety. Capitalized terms not explicitly defined herein but defined in the Plan or the Stock Option Agreement shall have the meanings set forth in the Plan or the Stock Option Agreement, as applicable.

Optionholder:	_____
Date of Grant:	_____
Number of Shares of Common Stock Subject to Option:	_____
Exercise Price (Per Share):	_____
Total Exercise Price:	_____
Expiration Date:	_____

Type of Grant: Nonstatutory Stock Option

Exercise and Vesting Schedule: Subject to the Optionholder's Continuous Service through each applicable vesting date, the Option will vest as follows:

[Initial Grant] [The shares subject to the Option shall vest and become exercisable in a series of thirty-six (36) successive equal monthly installments measured from the Date of Grant.]

[Annual Grant] [The shares subject to the Option shall vest and become exercisable at the earlier of (i) the one-year anniversary of the Date of Grant and (ii) the day before the next Annual Meeting of the stockholders of the Company.]

Subject to the Optionholder's Continuous Service through immediately prior to a Change in Control, the shares subject to the Option shall fully vest and become exercisable upon such Change in Control.

Optionholder Acknowledgements: By Optionholder's signature below or by electronic acceptance or authentication in a form authorized by the Company, Optionholder understands and agrees that the Option is governed by this Stock Option Grant Notice, and the provisions of the Plan and the Stock Option Agreement and the Notice of Exercise, all of which are made a part of this document. By accepting this Option, Optionholder consents to receive this Grant Notice, the Stock Option Agreement, the Plan, the Prospectus and any other Plan-related documents by electronic delivery and to participate in the Plan through an on-line or electronic system established and maintained by the Company or another third party designated by the Company. Optionholder represents that he or she has read and is familiar with the provisions of the Plan, the Stock Option Agreement and the Prospectus, a copy of which has been separately provided to Optionholder. Optionholder acknowledges and agrees that this Grant Notice and the Stock Option Agreement (together, the "***Option Agreement***") may not be modified, amended or revised except in a writing signed by Optionholder and a duly authorized officer of the Company. Optionholder further acknowledges that in the event of any conflict between the provisions in this Grant Notice, the Option Agreement, the Notice of Exercise, or the Prospectus and the terms of the Plan, the terms of the Plan shall control. Optionholder further acknowledges that the Option Agreement sets forth the entire understanding between Optionholder and the Company regarding the acquisition of Common Stock and supersedes all prior oral and written agreements, promises and/or representations on that subject with the exception of other equity awards previously granted to Optionholder and any written employment agreement, offer letter, severance agreement, written severance plan or policy, or other written agreement between the Company and Optionholder in each case that specifies the terms that should govern this Option.

Counterparts may be delivered via facsimile, electronic mail (including pdf or any electronic signature complying with the U.S. federal ESIGN Act of 2000, Uniform Electronic Transactions Act or other applicable law) or other transmission method and any counterpart so delivered will be deemed to have been duly and validly delivered and be valid and effective for all purposes.

POSEIDA THERAPEUTICS, INC.	**OPTIONHOLDER:**
By: _____	_____
Signature	Signature
Title: _____	Date: _____
Date: _____	

ATTACHMENTS: Stock Option Agreement, 2020 Equity Incentive Plan, Notice of Exercise

ATTACHMENT I

STOCK OPTION AGREEMENT

POSEIDA THERAPEUTICS, INC.
2020 EQUITY INCENTIVE PLAN

NON-EMPLOYEE DIRECTOR STOCK OPTION AGREEMENT

As reflected by your Stock Option Grant Notice ("***Grant Notice***") Poseida Therapeutics, Inc. (the "***Company***") has granted you an option under its 2020 Equity Incentive Plan (the "***Plan***") to purchase a number of shares of Common Stock at the exercise price indicated in your Grant Notice (the "***Option***"). Capitalized terms not explicitly defined in this Agreement but defined in the Grant Notice or the Plan shall have the meanings set forth in the Grant Notice or Plan, as applicable. The terms of your Option as specified in the Grant Notice and this Stock Option Agreement constitute your Option Agreement.

The general terms and conditions applicable to your Option are as follows:

1. GOVERNING PLAN DOCUMENT. Your Option is subject to all the provisions of the Plan, including but not limited to the provisions in:

(a) Section 6 regarding the impact of a Capitalization Adjustment, dissolution, liquidation, or Corporate Transaction on your Option;

(b) Section 9(e) regarding the Company's retained rights to terminate your Continuous Service notwithstanding the grant of the Option; and

(c) Section 8(c) regarding the tax consequences of your Option.

Your Option is further subject to all interpretations, amendments, rules and regulations, which may from time to time be promulgated and adopted pursuant to the Plan. In the event of any conflict between the Option Agreement and the provisions of the Plan, the provisions of the Plan shall control.

2. EXERCISE.

(a) You may generally exercise the vested portion of your Option for whole shares of Common Stock at any time during its term by delivery of payment of the exercise price and applicable withholding taxes and other required documentation to the Plan Administrator in accordance with the exercise procedures established by the Plan Administrator, which may include an electronic submission. Please review Sections 4(i), 4(j) and 7(b)(v) of the Plan, which may restrict or prohibit your ability to exercise your Option during certain periods.

(b) To the extent permitted by Applicable Law, you may pay your Option exercise price as follows:

(i) cash, check, bank draft or money order;

(ii) subject to Company and/or Committee consent at the time of exercise, pursuant to a "cashless exercise" program as further described in Section 4(c)(ii) of the Plan if at the time of exercise the Common Stock is publicly traded;

(iii) subject to Company and/or Committee consent at the time of exercise, by delivery of previously owned shares of Common Stock as further described in Section 4(c)(iii) of the Plan; or

(iv) subject to Company and/or Committee consent at the time of exercise, by a "net exercise" arrangement as further described in Section 4(c)(iv) of the Plan.

(c) By accepting your Option, you agree that you will not sell, dispose of, transfer, make any short sale of, grant any option for the purchase of, or enter into any hedging or similar transaction with the same economic effect as a sale with respect to any shares of Common Stock or other securities of the Company held by you, for a period of one hundred eighty (180) days following the effective date of a registration statement of the Company filed under the Securities Act or such longer period as the underwriters or the Company will request to facilitate compliance with FINRA Rule 2241 or any successor or similar rules or regulation (the "***Lock-Up Period***"); *provided, however*, that nothing contained in this Section 2(c) will prevent the exercise of a repurchase option, if any, in favor of the Company during the Lock-Up Period. You further agree to execute and deliver such other agreements as may be reasonably requested by the Company or the underwriters that are consistent with the foregoing or that are necessary to give further effect thereto. In order to enforce the foregoing covenant, the Company may impose stop-transfer instructions with respect to your shares of Common Stock until the end of such period. You also agree that any transferee of any shares of Common Stock (or other securities) of the Company held by you will be bound by this Section 2(c). The underwriters of the Company's stock are intended third party beneficiaries of this Section 2(c) and will have the right, power and authority to enforce the provisions hereof as though they were a party hereto.

3. TERM. You may not exercise your Option before the commencement of its term or after its term expires. The term of your Option commences on the Date of Grant and expires upon the earliest of the following:

(a) immediately upon the termination of your Continuous Service for Cause;

(b) 12 months after the termination of your Continuous Service for any reason other than Cause, Disability or death;

(c) 12 months after the termination of your Continuous Service due to your Disability;

(d) 18 months after your death if you die during your Continuous Service;

(e) immediately upon a Corporate Transaction if the Board has determined that the Option will terminate in connection with a Corporate Transaction,

(f) the Expiration Date indicated in your Grant Notice; or

(g) the day before the 10th anniversary of the Date of Grant.

Notwithstanding the foregoing, if you die during the period provided in Section 3(b) or 3(c) above, the term of your Option shall not expire until the earlier of (i) eighteen months after your death, (ii) upon any termination of the Option in connection with a Corporate Transaction, (iii) the Expiration Date indicated in your Grant Notice, or (iv) the day before the tenth anniversary of the Date of Grant. Additionally, the Post-Termination Exercise Period of your Option may be extended as provided in Section 4(i) of the Plan.

4. WITHHOLDING OBLIGATIONS. To the extent applicable, as further provided in Section 8 of the Plan: (a) you may not exercise your Option unless the applicable tax withholding obligations are satisfied, and (b) at the time you exercise your Option, in whole or in part, or at any time thereafter as requested by the Company, you hereby authorize withholding from payroll and any other amounts payable to you, and otherwise agree to make adequate provision for (including by means of a "cashless exercise" pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board to the extent permitted by the Company), any sums required to satisfy the federal, state, local and foreign tax withholding obligations, if any, which arise in connection with the exercise of your Option in accordance with the withholding procedures established by the Company. Accordingly, you may not be able to exercise your Option even though the Option is vested, and the Company shall have no obligation to issue shares of Common Stock subject to your Option, unless and until such obligations are satisfied. In the event that the amount of the Company's withholding obligation in connection with your Option was greater than the amount actually withheld by the Company, you agree to indemnify and hold the Company harmless from any failure by the Company to withhold the proper amount.

5. TRANSFERABILITY. Except as otherwise provided in Section 4(e) of the Plan, your Option is not transferable, except by will or by the applicable laws of descent and distribution, and is exercisable during your life only by you.

6. CORPORATE TRANSACTION. Your Option is subject to the terms of any agreement governing a Corporate Transaction involving the Company, including, without limitation, a provision for the appointment of a stockholder representative that is authorized to act on your behalf with respect to any escrow, indemnities and any contingent consideration.

7. PARACHUTE PAYMENTS. If any payment or benefit you will or may receive from the Company or otherwise (a "***Payment***") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "***Excise Tax***"), then any such Payment shall be equal to the Reduced Amount. The "***Reduced Amount***" shall be either (x) the largest portion of the Payment that would result in no portion of the Payment (after reduction) being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount (i.e., the amount determined by clause (x) or by clause (y)), after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in your receipt, on an after-tax basis, of the greater economic benefit notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in a Payment is required pursuant to the preceding sentence and the Reduced Amount is determined pursuant to clause (x) of the preceding sentence, the reduction shall occur in the manner (the "***Reduction Method***") that results in the greatest economic benefit for you. If more than one method of reduction will result in the same economic benefit, the items so reduced will be reduced pro rata (the "***Pro Rata Reduction Method***").

Notwithstanding any provisions in this Section 7 to the contrary, if the Reduction Method or the Pro Rata Reduction Method would result in any portion of the Payment being subject to taxes pursuant to Section 409A that would not otherwise be subject to taxes pursuant to Section 409A, then the Reduction Method and/or the Pro Rata Reduction Method, as the case may be, shall be modified so as to avoid the imposition of taxes pursuant to Section 409A as follows: (A) as a first priority, the modification shall preserve to the greatest extent possible, the greatest economic benefit for you as determined on an after-tax basis; (B) as a second priority, Payments that are contingent on future events (*e.g.*, being terminated without Cause), shall be reduced (or eliminated) before Payments that are not contingent on future events; and (C) as a third priority, Payments that are "deferred compensation" within the meaning of Section 409A shall be reduced (or eliminated) before Payments that are not deferred compensation within the meaning of Section 409A.

The Company shall appoint a nationally recognized accounting or law firm to make the determinations required by this Section 7. The Company shall bear all expenses with respect to the determinations by such accounting or law firm required to be made hereunder. If you receive a Payment for which the Reduced Amount was determined pursuant to clause (x) above and the Internal Revenue Service determines thereafter that some portion of the Payment is subject to the Excise Tax, you agree to promptly return to the Company a sufficient amount of the Payment (after reduction pursuant to clause (x) above) so that no portion of the remaining Payment is subject to the Excise Tax. For the avoidance of doubt, if the Reduced Amount was determined pursuant to clause (y) above, you shall have no obligation to return any portion of the Payment pursuant to the preceding sentence.

8. NO LIABILITY FOR TAXES. As a condition to accepting the Option, you hereby (a) agree to not make any claim against the Company, or any of its Officers, Directors, Employees or Affiliates related to tax liabilities arising from the Option or other Company compensation and (b) acknowledge that you were advised to consult with your own personal tax, financial and other legal advisors regarding the tax consequences of the Option and have either done so or knowingly and voluntarily declined to do so. Additionally, you acknowledge that the Option is exempt from Section 409A only if the exercise price is at least equal to the "fair market value" of the Common Stock on the date of grant as determined by the Internal Revenue Service and there is no other impermissible deferral of compensation associated with the Option. Additionally, as a condition to accepting the Option, you agree not make any claim against the Company, or any of its Officers, Directors, Employees or Affiliates in the event that the Internal Revenue Service asserts that such exercise is less than the "fair market value" of the Common Stock on the date of grant as subsequently determined by the Internal Revenue Service.

9. SEVERABILITY. If any part of this Option Agreement or the Plan is declared by any court or governmental authority to be unlawful or invalid, such unlawfulness or invalidity will not invalidate any portion of this Option Agreement or the Plan not declared to be unlawful or invalid. Any Section of this Option Agreement (or part of such a Section) so declared to be unlawful or invalid will, if possible, be construed in a manner which will give effect to the terms of such Section or part of a Section to the fullest extent possible while remaining lawful and valid.

10. OTHER DOCUMENTS. You hereby acknowledge receipt of or the right to receive a document providing the information required by Rule 428(b)(1) promulgated under the Securities Act, which includes the Prospectus. In addition, you acknowledge receipt of the Company's Trading Policy.

11. QUESTIONS. If you have questions regarding these or any other terms and conditions applicable to your Option, including a summary of the applicable federal income tax consequences please see the Prospectus. You can request a paper copy of the Prospectus from the Plan Administrator.

ATTACHMENT II

2020 EQUITY INCENTIVE PLAN

ATTACHMENT III

NOTICE OF EXERCISE

POSEIDA THERAPEUTICS, INC.

(2020 EQUITY INCENTIVE PLAN)

NON-EMPLOYEE DIRECTOR NOTICE OF EXERCISE

POSEIDA THERAPEUTICS, INC.
9390 TOWNE CENTRE DRIVE, SUITE 200
SAN DIEGO, CA 92121

Date of Exercise: _____

This constitutes notice to Poseida Therapeutics, Inc. (the "***Company***") that I elect to purchase the below number of shares of Common Stock of the Company (the "***Shares***") by exercising my Option for the price set forth below. Capitalized terms not explicitly defined in this Notice of Exercise but defined in the Grant Notice, Option Agreement or 2020 Equity Incentive Plan (the "***Plan***") shall have the meanings set forth in the Grant Notice, Option Agreement or Plan, as applicable. Use of certain payment methods is subject to Company and/or Committee consent and certain additional requirements set forth in the Option Agreement and the Plan.

Type of option:	Nonstatutory
Date of Grant:	_____
Number of Shares as to which Option is exercised:	_____
Certificates to be issued in name of:	_____
Total exercise price:	$_____
Cash, check, bank draft or money order delivered herewith:	$_____
Value of _____ Shares delivered herewith:	$_____
Regulation T Program (cashless exercise)	$_____
Value of _____ Shares pursuant to net exercise:	$_____

By this exercise, I agree (i) to provide such additional documents as you may require pursuant to the terms of the Plan, and (ii) if applicable, to satisfy the tax withholding obligations, if any, relating to the exercise of this Option as set forth in the Option Agreement.

I further agree that I will not sell, dispose of, transfer, make any short sale of, grant any option for the purchase of, or enter into any hedging or similar transaction with the same economic effect as a sale with respect to any shares of Common Stock or other securities of the Company that I hold, for a period of one hundred eighty (180) days following the effective date of a registration statement of the Company filed under the Securities Act or such longer period as the underwriters or the Company will request to facilitate compliance with FINRA Rule 2241 or any successor or similar rules or regulation (the "***Lock-Up Period***"); *provided, however*, that nothing contained in this paragraph will prevent the exercise of a repurchase option, if any, in favor of the Company during the Lock-Up Period. I further agree to execute and deliver such other agreements as may be reasonably requested by the Company or the underwriters that are consistent with the foregoing or that are necessary to give further effect thereto. I further agree that in order to enforce the foregoing covenant, the Company may impose stop-transfer instructions with respect to shares of Common Stock that I hold until the end of such period. I also agree that any transferee of any shares of Common Stock (or other securities) of the Company that I hold will be bound by this paragraph. The underwriters of the Company's stock are intended third party beneficiaries of this paragraph and will have the right, power and authority to enforce the provisions hereof as though they were a party hereto.

Very truly yours,

_____

POSEIDA THERAPEUTICS, INC.

2020 EMPLOYEE STOCK PURCHASE PLAN

ADOPTED BY THE BOARD OF DIRECTORS: JULY 1, 2020
APPROVED BY THE STOCKHOLDERS: JULY 1, 2020

1. GENERAL; PURPOSE.

(a) The Plan provides a means by which Eligible Employees of the Company and certain designated Related Corporations may be given an opportunity to purchase shares of Common Stock. The Plan permits the Company to grant a series of Purchase Rights to Eligible Employees under an Employee Stock Purchase Plan.

(b) The Company, by means of the Plan, seeks to retain the services of such Employees, to secure and retain the services of new Employees and to provide incentives for such persons to exert maximum efforts for the success of the Company and its Related Corporations.

2. ADMINISTRATION.

(a) The Board will administer the Plan unless and until the Board delegates administration of the Plan to a Committee or Committees, as provided in Section 2(c).

(b) The Board will have the power, subject to, and within the limitations of, the express provisions of the Plan:

(i) To determine how and when Purchase Rights will be granted and the provisions of each Offering (which need not be identical).

(ii) To designate from time to time which Related Corporations of the Company will be eligible to participate in the Plan.

(iii) To construe and interpret the Plan and Purchase Rights, and to establish, amend and revoke rules and regulations for its administration. The Board, in the exercise of this power, may correct any defect, omission or inconsistency in the Plan, in a manner and to the extent it deems necessary or expedient to make the Plan fully effective.

(iv) To settle all controversies regarding the Plan and Purchase Rights granted under the Plan.

(v) To suspend or terminate the Plan at any time as provided in Section 12.

(vi) To amend the Plan at any time as provided in Section 12.

(vii) Generally, to exercise such powers and to perform such acts as it deems necessary or expedient to promote the best interests of the Company and its Related Corporations and to carry out the intent that the Plan be treated as an Employee Stock Purchase Plan.

(viii) To adopt such procedures and sub-plans as are necessary or appropriate to permit participation in the Plan by Employees who are foreign nationals or employed outside the United States.

(c) The Board may delegate some or all of the administration of the Plan to a Committee or Committees. If administration is delegated to a Committee, the Committee will have, in connection with the administration of the Plan, the powers theretofore possessed by the Board that have been delegated to the Committee, including the power to delegate to a subcommittee any of the administrative powers the Committee is authorized to exercise (and references to the Board in this Plan and in any applicable Offering Document will thereafter be to the Committee or subcommittee), subject, however, to such resolutions, not inconsistent with the provisions of the Plan, as may be adopted from time to time by the Board. The Board may retain the authority to concurrently administer the Plan with the Committee and may, at any time, revest in the Board some or all of the powers previously delegated. Whether or not the Board has delegated administration of the Plan to a Committee, the Board will have the final power to determine all questions of policy and expediency that may arise in the administration of the Plan.

(d) All determinations, interpretations and constructions made by the Board in good faith will not be subject to review by any person and will be final, binding and conclusive on all persons.

3. SHARES OF COMMON STOCK SUBJECT TO THE PLAN.

(a) Subject to the provisions of Section 11(a) relating to Capitalization Adjustments, the maximum number of shares of Common Stock that may be issued under the Plan will not exceed 615,000 shares of Common Stock, plus the number of shares of Common Stock that are automatically added on January 1st of each year for a period of up to ten years, commencing on the first January 1 following the IPO Date and ending on (and including) January 1, 2030, in an amount equal to the lesser of (i) 1.0% of the total number of shares of Common Stock outstanding on December 31st of the preceding calendar year, and (ii) 1,230,000 shares of Common Stock. Notwithstanding the foregoing, the Board may act prior to the first day of any calendar year to provide that there will be no January 1st increase in the share reserve for such calendar year or that the increase in the share reserve for such calendar year will be a lesser number of shares of Common Stock than would otherwise occur pursuant to the preceding sentence.

(b) If any Purchase Right granted under the Plan terminates without having been exercised in full, the shares of Common Stock not purchased under such Purchase Right will again become available for issuance under the Plan.

(c) The stock purchasable under the Plan will be shares of authorized but unissued or reacquired Common Stock, including shares repurchased by the Company on the open market.

4. GRANT OF PURCHASE RIGHTS; OFFERING.

(a) The Board may from time to time grant or provide for the grant of Purchase Rights to Eligible Employees under an Offering (consisting of one or more Purchase Periods) on an Offering Date or Offering Dates selected by the Board. Each Offering will be in such form and will contain such terms and conditions as the Board will deem appropriate, and will comply with the requirement of Section 423(b)(5) of the Code that all Employees granted Purchase Rights will have the same rights and privileges. The terms and conditions of an Offering shall be incorporated by reference into the Plan and treated as part of the Plan. The provisions of separate Offerings need not be identical, but each Offering will include (through incorporation of the provisions of this Plan by reference in the document comprising the Offering or otherwise) the period during which the Offering will be effective, which period will not exceed 27 months beginning with the Offering Date, and the substance of the provisions contained in Sections 5 through 8, inclusive.

(b) If a Participant has more than one Purchase Right outstanding under the Plan, unless he or she otherwise indicates in forms delivered to the Company: (i) each form will apply to all of his or her Purchase Rights under the Plan, and (ii) a Purchase Right with a lower exercise price (or an earlier-granted Purchase Right, if different Purchase Rights have identical exercise prices) will be exercised to the fullest possible extent before a Purchase Right with a higher exercise price (or a later-granted Purchase Right if different Purchase Rights have identical exercise prices) will be exercised.

(c) The Board will have the discretion to structure an Offering so that if the Fair Market Value of a share of Common Stock on the first Trading Day of a new Purchase Period within that Offering is less than or equal to the Fair Market Value of a share of Common Stock on the Offering Date for that Offering, then (i) that Offering will terminate immediately as of that first Trading Day, and (ii) the Participants in such terminated Offering will be automatically enrolled in a new Offering beginning on the first Trading Day of such new Purchase Period.

5. ELIGIBILITY.

(a) Purchase Rights may be granted only to Employees of the Company or, as the Board may designate in accordance with Section 2(b), to Employees of a Related Corporation. Except as provided in Section 5(b), an Employee will not be eligible to be granted Purchase Rights unless, on the Offering Date, the Employee has been in the employ of the Company or the Related Corporation, as the case may be, for such continuous period preceding such Offering Date as the Board may require, but in no event will the required period of continuous employment be equal to or greater than two years. In addition, the Board may provide that no Employee will be eligible to be granted Purchase Rights under the Plan unless, on the Offering Date, such Employee's customary employment with the Company or the Related Corporation is more than 20 hours per week and more than five months per calendar year or such other criteria as the Board may determine consistent with Section 423 of the Code.

(b) The Board may provide that each person who, during the course of an Offering, first becomes an Eligible Employee will, on a date or dates specified in the Offering which coincides with the day on which such person becomes an Eligible Employee or which occurs thereafter, receive a Purchase Right under that Offering, which Purchase Right will thereafter be deemed to be a part of that Offering. Such Purchase Right will have the same characteristics as any Purchase Rights originally granted under that Offering, as described herein, except that:

(i) the date on which such Purchase Right is granted will be the "Offering Date" of such Purchase Right for all purposes, including determination of the exercise price of such Purchase Right;

(ii) the period of the Offering with respect to such Purchase Right will begin on its Offering Date and end coincident with the end of such Offering; and

(iii) the Board may provide that if such person first becomes an Eligible Employee within a specified period of time before the end of the Offering, he or she will not receive any Purchase Right under that Offering.

(c) No Employee will be eligible for the grant of any Purchase Rights if, immediately after any such Purchase Rights are granted, such Employee owns stock possessing five percent or more of the total combined voting power or value of all classes of stock of the Company or of any Related Corporation. For purposes of this Section 5(c), the rules of Section 424(d) of the Code will apply in determining the stock ownership of any Employee, and stock which such Employee may purchase under all outstanding Purchase Rights and options will be treated as stock owned by such Employee.

(d) As specified by Section 423(b)(8) of the Code, an Eligible Employee may be granted Purchase Rights only if such Purchase Rights, together with any other rights granted under all Employee Stock Purchase Plans of the Company and any Related Corporations, do not permit such Eligible Employee's rights to purchase stock of the Company or any Related Corporation to accrue at a rate which, when aggregated, exceeds $25,000 of Fair Market Value of such stock (determined at the time such rights are granted, and which, with respect to the Plan, will be determined as of their respective Offering Dates) for each calendar year in which such rights are outstanding at any time.

(e) Officers of the Company and any designated Related Corporation, if they are otherwise Eligible Employees, will be eligible to participate in Offerings under the Plan. Notwithstanding the foregoing, the Board may provide in an Offering that Employees who are highly compensated Employees within the meaning of Section 423(b)(4)(D) of the Code will not be eligible to participate.

6. PURCHASE RIGHTS; PURCHASE PRICE.

(a) On each Offering Date, each Eligible Employee, pursuant to an Offering made under the Plan, will be granted a Purchase Right to purchase up to that number of shares of Common Stock purchasable either with a percentage or with a maximum dollar amount, as designated by the Board, but in either case not exceeding 15% of such Employee's earnings (as defined by the Board in each Offering) during the period that begins on the Offering Date (or such later date as the Board determines for a particular Offering) and ends on the date stated in the Offering, which date will be no later than the end of the Offering.

(b) The Board will establish one or more Purchase Dates during an Offering on which Purchase Rights granted for that Offering will be exercised and shares of Common Stock will be purchased in accordance with such Offering.

(c) In connection with each Offering made under the Plan, the Board may specify (i) a maximum number of shares of Common Stock that may be purchased by any Participant on any Purchase Date during such Offering, (ii) a maximum aggregate number of shares of Common Stock that may be purchased by all Participants pursuant to such Offering and/or (iii) a maximum aggregate number of shares of Common Stock that may be purchased by all Participants on any Purchase Date under the Offering. If the aggregate purchase of shares of Common Stock issuable upon exercise of Purchase Rights granted under the Offering would exceed any such maximum aggregate number, then, in the absence of any Board action otherwise, a pro rata (based on each Participant's accumulated Contributions) allocation of the shares of Common Stock available will be made in as nearly a uniform manner as will be practicable and equitable.

(d) The purchase price of shares of Common Stock acquired pursuant to Purchase Rights will be not less than the lesser of:

(i) an amount equal to 85% of the Fair Market Value of the shares of Common Stock on the Offering Date; or

(ii) an amount equal to 85% of the Fair Market Value of the shares of Common Stock on the applicable Purchase Date.

7. PARTICIPATION; WITHDRAWAL; TERMINATION.

(a) An Eligible Employee may elect to participate in an Offering and authorize payroll deductions as the means of making Contributions by completing and delivering to the Company, within the time specified in the Offering, an enrollment form provided by the Company. The enrollment form will specify the amount of Contributions not to exceed the maximum amount specified by the Board. Each Participant's Contributions will be credited to a bookkeeping account for such Participant under the Plan and will be deposited with the general funds of the Company except where applicable law requires that

Contributions be deposited with a third party. If permitted in the Offering, a Participant may begin such Contributions with the first practicable payroll occurring on or after the Offering Date (or, in the case of a payroll date that occurs after the end of the prior Offering but before the Offering Date of the next new Offering, Contributions from such payroll will be included in the new Offering). If permitted in the Offering, a Participant may thereafter reduce (including to zero) or increase his or her Contributions. If specifically provided in the Offering, in addition to or instead of making Contributions by payroll deductions, a Participant may make Contributions through the payment by cash or check prior to a Purchase Date.

(b) During an Offering, a Participant may cease making Contributions and withdraw from the Offering by delivering to the Company a withdrawal form provided by the Company. The Company may impose a deadline before a Purchase Date for withdrawing. Upon such withdrawal, such Participant's Purchase Right in that Offering will immediately terminate and the Company will distribute as soon as practicable to such Participant all of his or her accumulated but unused Contributions and such Participant's Purchase Right in that Offering shall thereupon terminate. A Participant's withdrawal from that Offering will have no effect upon his or her eligibility to participate in any other Offerings under the Plan, but such Participant will be required to deliver a new enrollment form to participate in subsequent Offerings.

(c) Unless otherwise required by applicable law, Purchase Rights granted pursuant to any Offering under the Plan will terminate immediately if the Participant either (i) is no longer an Employee for any reason or for no reason (subject to any post-employment participation period required by law) or (ii) is otherwise no longer eligible to participate. The Company will distribute to such individual as soon as practicable all of his or her accumulated but unused Contributions.

(d) During a Participant's lifetime, Purchase Rights will be exercisable only by such Participant. Purchase Rights are not transferable by a Participant, except by will, by the laws of descent and distribution, or, if permitted by the Company, by a beneficiary designation as described in Section 10.

(e) Unless otherwise specified in the Offering or required by applicable law, the Company will have no obligation to pay interest on Contributions.

8. EXERCISE OF PURCHASE RIGHTS.

(a) On each Purchase Date, each Participant's accumulated Contributions will be applied to the purchase of shares of Common Stock, up to the maximum number of shares of Common Stock permitted by the Plan and the applicable Offering, at the purchase price specified in the Offering. No fractional shares will be issued unless specifically provided for in the Offering.

(b) Unless otherwise provided in the Offering, if any amount of accumulated Contributions remains in a Participant's account after the purchase of shares of Common Stock and such remaining amount is less than the amount required to purchase one share of Common Stock on the final Purchase Date of an Offering, then such remaining amount will be held in such Participant's account for the purchase of shares of Common Stock under the next Offering under the Plan, unless such Participant withdraws from or is not eligible to participate in such next Offering, in which case such amount will be distributed to such Participant after the final Purchase Date without interest (unless the payment of interest is otherwise required by applicable law). If the amount of Contributions remaining in a Participant's account after the purchase of shares of Common Stock is at least equal to the amount required to purchase one (1) whole share of Common Stock on the final Purchase Date of an Offering, then such remaining amount will be distributed in full to such Participant after the final Purchase Date of such Offering without interest.

(c) No Purchase Rights may be exercised to any extent unless the shares of Common Stock to be issued upon such exercise under the Plan are covered by an effective registration statement pursuant to the Securities Act and the Plan is in material compliance with all applicable federal, state, foreign and other securities and other laws applicable to the Plan. If on a Purchase Date the shares of Common Stock are not so registered or the Plan is not in such compliance, no Purchase Rights will be exercised on such Purchase Date, and the Purchase Date will be delayed until the shares of Common Stock are subject to such an effective registration statement and the Plan is in material compliance, except that the Purchase Date will in no event be more than 6 months from the Offering Date. If, on the Purchase Date, as delayed to the maximum extent permissible, the shares of Common Stock are not registered and the Plan is not in material compliance with all applicable laws, no Purchase Rights will be exercised and all accumulated but unused Contributions will be distributed to the Participants without interest.

9. COVENANTS OF THE COMPANY.

The Company will seek to obtain from each U.S. federal or state, foreign or other regulatory commission or agency having jurisdiction over the Plan such authority as may be required to grant Purchase Rights and issue and sell shares of Common Stock thereunder unless the Company determines, in its sole discretion, that doing so would cause the Company to incur costs that are unreasonable. If, after commercially reasonable efforts, the Company is unable to obtain the authority that counsel for the Company deems necessary for the grant of Purchase Rights or the lawful issuance and sale of Common Stock under the Plan, and at a commercially reasonable cost, the Company will be relieved from any liability for failure to grant Purchase Rights and/or to issue and sell Common Stock upon exercise of such Purchase Rights.

10. DESIGNATION OF BENEFICIARY.

(a) The Company may, but is not obligated to, permit a Participant to submit a form designating a beneficiary who will receive any shares of Common Stock and/or Contributions from the Participant's account under the Plan if the Participant dies before such shares and/or Contributions are delivered to the Participant. The Company may, but is not obligated to, permit the Participant to change such designation of beneficiary. Any such designation and/or change must be on a form approved by the Company.

(b) If a Participant dies, and in the absence of a valid beneficiary designation, the Company will deliver any shares of Common Stock and/or Contributions to the executor or administrator of the estate of the Participant. If no executor or administrator has been appointed (to the knowledge of the Company), the Company, in its sole discretion, may deliver such shares of Common Stock and/or Contributions without interest (unless the payment of interest is otherwise required by applicable law) to the Participant's spouse, dependents or relatives, or if no spouse, dependent or relative is known to the Company, then to such other person as the Company may designate.

11. ADJUSTMENTS UPON CHANGES IN COMMON STOCK; CORPORATE TRANSACTIONS.

(a) In the event of a Capitalization Adjustment, the Board will appropriately and proportionately adjust: (i) the class(es) and maximum number of securities subject to the Plan pursuant to Section 3(a), (ii) the class(es) and maximum number of securities by which the share reserve is to increase automatically each year pursuant to Section 3(a), (iii) the class(es) and number of securities subject to, and the purchase price applicable to outstanding Offerings and Purchase Rights, and (iv) the class(es) and number of securities that are the subject of the purchase limits under each ongoing Offering. The Board will make these adjustments, and its determination will be final, binding and conclusive.

(b) In the event of a Corporate Transaction, then: (i) any surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) may assume or continue outstanding Purchase Rights or may substitute similar rights (including a right to acquire the same consideration paid to the stockholders in the Corporate Transaction) for outstanding Purchase Rights, or (ii) if any surviving or acquiring corporation (or its parent company) does not assume or continue such Purchase Rights or does not substitute similar rights for such Purchase Rights, then the Participants' accumulated Contributions will be used to purchase shares of Common Stock within ten business days prior to the Corporate Transaction under the outstanding Purchase Rights, and the Purchase Rights will terminate immediately after such purchase.

12. AMENDMENT, TERMINATION OR SUSPENSION OF THE PLAN.

(a) The Board may amend the Plan at any time in any respect the Board deems necessary or advisable. However, except as provided in Section 11(a) relating to Capitalization Adjustments, stockholder approval will be required for any amendment of the Plan for which stockholder approval is required by applicable law or listing requirements.

(b) The Board may suspend or terminate the Plan at any time. No Purchase Rights may be granted under the Plan while the Plan is suspended or after it is terminated.

(c) Any benefits, privileges, entitlements and obligations under any outstanding Purchase Rights granted before an amendment, suspension or termination of the Plan will not be materially impaired by any such amendment, suspension or termination except (i) with the consent of the person to whom such Purchase Rights were granted, (ii) as necessary to comply with any laws, listing requirements, or governmental regulations (including, without limitation, the provisions of Section 423 of the Code and the regulations and other interpretive guidance issued thereunder relating to Employee Stock Purchase Plans) including without limitation any such regulations or other guidance that may be issued or amended after the date the Plan is adopted by the Board, or (iii) as necessary to obtain or maintain favorable tax, listing, or regulatory treatment. To be clear, the Board may amend outstanding Purchase Rights without a Participant's consent if such amendment is necessary to ensure that the Purchase Right and/or the Plan complies with the requirements of Section 423 of the Code.

Notwithstanding anything in the Plan or any Offering Document to the contrary, the Board will be entitled to: (i) establish the exchange ratio applicable to amounts withheld in a currency other than U.S. dollars; (ii) permit Contributions in excess of the amount designated by a Participant in order to adjust for mistakes in the Company's processing of properly completed Contribution elections; (iii) establish reasonable waiting and adjustment periods and/or accounting and crediting procedures to ensure that amounts applied toward the purchase of Common Stock for each Participant properly correspond with amounts withheld from the Participant's Contributions; (iv) amend any outstanding Purchase Rights or clarify any ambiguities regarding the terms of any Offering to enable the Purchase Rights to qualify under and/or comply with Section 423 of the Code; and (v) establish other limitations or procedures as the Board determines in its sole discretion advisable that are consistent with the Plan. The actions of the Board pursuant to this paragraph will not be considered to alter or impair any Purchase Rights granted under an Offering as they are part of the initial terms of each Offering and the Purchase Rights granted under each Offering.

13. EFFECTIVE DATE OF PLAN.

The Plan will become effective immediately prior to and contingent upon the IPO Date. No Purchase Rights will be exercised unless and until the Plan has been approved by the stockholders of the Company, which approval must be within 12 months before or after the date the Plan is adopted (or if required under Section 12(a) above, materially amended) by the Board.

14. MISCELLANEOUS PROVISIONS.

(a) Proceeds from the sale of shares of Common Stock pursuant to Purchase Rights will constitute general funds of the Company.

(b) A Participant will not be deemed to be the holder of, or to have any of the rights of a holder with respect to, shares of Common Stock subject to Purchase Rights unless and until the Participant's shares of Common Stock acquired upon exercise of Purchase Rights are recorded in the books of the Company (or its transfer agent).

(c) The Plan and Offering do not constitute an employment contract. Nothing in the Plan or in the Offering will in any way alter the at will nature of a Participant's employment or be deemed to create in any way whatsoever any obligation on the part of any Participant to continue in the employ of the Company or a Related Corporation, or on the part of the Company or a Related Corporation to continue the employment of a Participant.

(d) The provisions of the Plan will be governed by the laws of the State of Delaware without resort to that state's conflict of laws rules.

15. DEFINITIONS.

As used in the Plan, the following definitions will apply to the capitalized terms indicated below:

(a) "***Board***" means the Board of Directors of the Company.

(b) "***Capitalization Adjustment***" means any change that is made in, or other events that occur with respect to, the Common Stock subject to the Plan or subject to any Purchase Right after the date the Plan is adopted by the Board without the receipt of consideration by the Company through merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or other similar equity restructuring transaction, as that term is used in Financial Accounting Standards Board Accounting Standards Codification Topic 718 (or any successor thereto). Notwithstanding the foregoing, the conversion of any convertible securities of the Company will not be treated as a Capitalization Adjustment.

(c) "***Code***" means the Internal Revenue Code of 1986, as amended, including any applicable regulations and guidance thereunder.

(d) "***Committee***" means a committee of one or more members of the Board to whom authority has been delegated by the Board in accordance with Section 2(c).

(e) "***Common Stock***" means, as of the IPO Date, the common stock of the Company.

(f) "***Company***" means Poseida Therapeutics, Inc., a Delaware corporation.

(g) **"*Contributions***" means the payroll deductions and other additional payments specifically provided for in the Offering that a Participant contributes to fund the exercise of a Purchase Right. A Participant may make additional payments into his or her account if specifically provided for in the Offering, and then only if the Participant has not already had the maximum permitted amount withheld during the Offering through payroll deductions.

(h) "***Corporate Transaction***" means the consummation, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) a sale or other disposition of all or substantially all, as determined by the Board in its sole discretion, of the consolidated assets of the Company and its subsidiaries;

(ii) a sale or other disposition of more than 50% of the outstanding securities of the Company;

(iii) a merger, consolidation or similar transaction following which the Company is not the surviving corporation; or

(iv) a merger, consolidation or similar transaction following which the Company is the surviving corporation but the shares of Common Stock outstanding immediately preceding the merger, consolidation or similar transaction are converted or exchanged by virtue of the merger, consolidation or similar transaction into other property, whether in the form of securities, cash or otherwise.

(i) "***Director***" means a member of the Board.

(j) "***Eligible Employee***" means an Employee who meets the requirements set forth in the document(s) governing the Offering for eligibility to participate in the Offering, provided that such Employee also meets the requirements for eligibility to participate set forth in the Plan.

(k) "***Employee***" means any person, including an Officer or Director, who is "employed" for purposes of Section 423(b)(4) of the Code by the Company or a Related Corporation. However, service solely as a Director, or payment of a fee for such services, will not cause a Director to be considered an "Employee" for purposes of the Plan.

(l) "***Employee Stock Purchase Plan***" means a plan that grants Purchase Rights intended to be options issued under an "employee stock purchase plan," as that term is defined in Section 423(b) of the Code.

(m) "***Exchange Act***" means the Securities Exchange Act of 1934, as amended and the rules and regulations promulgated thereunder.

(n) "***Fair Market Value***" means, as of any date, the value of the Common Stock determined as follows:

(i) If the Common Stock is listed on any established stock exchange or traded on any established market, the Fair Market Value of a share of Common Stock will be, unless otherwise determined by the Board, the closing sales price for such stock as quoted on such exchange or market (or the exchange or market with the greatest volume of trading in the Common Stock) on the date of determination, as reported in such source as the Board deems reliable. Unless otherwise provided by the Board, if there is no closing sales price for the Common Stock on the date of determination, then the Fair Market Value will be the closing sales price on the last preceding date for which such quotation exists.

(ii) In the absence of such markets for the Common Stock, the Fair Market Value will be determined by the Board in good faith in compliance with applicable laws and in a manner that complies with Sections 409A of the Code.

(iii) Notwithstanding the foregoing, for any Offering that commences on the IPO Date, the Fair Market Value of the shares of Common Stock on the Offering Date will be the price per share at which the shares are first sold to the public in the Company's initial public offering as specified in the final prospectus for that initial public offering.

(o) "***IPO Date***" means the date of the underwriting agreement between the Company and the underwriter(s) managing the initial public offering of the Common Stock, pursuant to which the Common Stock is priced for the initial public offering.

(p) "***Offering***" means the grant to Eligible Employees of Purchase Rights, with the exercise of those Purchase Rights automatically occurring at the end of one or more Purchase Periods. The terms and conditions of an Offering will generally be set forth in the "***Offering Document***" approved by the Board for that Offering.

(q) "***Offering Date***" means a date selected by the Board for an Offering to commence.

(r) "***Officer***" means a person who is an officer of the Company or a Related Corporation within the meaning of Section 16 of the Exchange Act.

(s) "***Participant***" means an Eligible Employee who holds an outstanding Purchase Right.

(t) "***Plan***" means this Poseida Therapeutics, Inc. 2020 Employee Stock Purchase Plan, as amended from time to time.

(u) "***Purchase Date***" means one or more dates during an Offering selected by the Board on which Purchase Rights will be exercised and on which purchases of shares of Common Stock will be carried out in accordance with such Offering.

(v) "***Purchase Period***" means a period of time specified within an Offering, generally beginning on the Offering Date or on the first Trading Day following a Purchase Date, and ending on a Purchase Date. An Offering may consist of one or more Purchase Periods.

(w) "***Purchase Right***" means an option to purchase shares of Common Stock granted pursuant to the Plan.

(x) "***Related Corporation***" means any "parent corporation" or "subsidiary corporation" of the Company whether now or subsequently established, as those terms are defined in Sections 424(e) and (f), respectively, of the Code.

(y) "***Securities Act***" means the Securities Act of 1933, as amended.

(z) "***Subsidiary***" means, with respect to the Company, (i) any corporation of which more than fifty percent (50%) of the outstanding capital stock having ordinary voting power to elect a majority of the board of directors of such corporation (irrespective of whether, at the time, stock of any other class or classes of such corporation will have or might have voting power by reason of the happening of any contingency) is at the time, directly or indirectly, Owned by the Company, and (ii) any partnership, limited liability company or other entity in which the Company has a direct or indirect interest (whether in the form

of voting or participation in profits or capital contribution) of more than fifty percent (50%). For purposes of the foregoing clause (i), the Company will be deemed to "Own" or have "Owned" such securities if the Company, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has or shares voting power, which includes the power to vote or to direct the voting, with respect to such securities.

(aa) "***Trading Day***" means any day on which the exchange(s) or market(s) on which shares of Common Stock are listed, including but not limited to the NYSE, Nasdaq Global Select Market, the Nasdaq Global Market, the Nasdaq Capital Market or any successors thereto, is open for trading.

Exhibit 10.5

POSEIDA THERAPEUTICS, INC.
SEVERANCE AND CHANGE IN CONTROL PLAN

Section 1. INTRODUCTION.

The Poseida Therapeutics, Inc. Severance and Change in Control Plan (the "***Plan***") is hereby established by the Board of Directors of Poseida Therapeutics, Inc. (the "***Company***") effective upon the IPO Date (as defined below). The purpose of the Plan is to provide for the payment of severance and/or Change in Control (as defined below) benefits to eligible employees of the Company. This Plan document also is the Summary Plan Description for the Plan.

For purposes of the Plan, the following terms are defined as follows:

(a) "***Affiliate***" means any corporation (other than the Company) in an "unbroken chain of corporations" beginning with the Company, if each of the corporations other than the last corporation in the unbroken chain owns stock possessing 50% or more of the total combined voting power of all classes of stock in one of the other corporations in such chain.

(b) "***Base Salary***" means base pay (excluding incentive pay, premium pay, commissions, overtime, bonuses and other forms of variable compensation) as in effect prior to any reduction that would give rise to an employee's right to a resignation for Good Reason (if applicable).

(c) "***Cause***" means, with respect to a particular employee, the meaning ascribed to such term in any written employment agreement, offer letter or similar agreement between such employee and the Company defining such term, and, in the absence of such agreement, means with respect to such employee, the term "Cause" as defined in the Equity Plan. The determination whether a termination is for Cause shall be made by the Plan Administrator in its sole and exclusive judgment and discretion.

(d) "***Change in Control***" has the meaning ascribed to such term in the Equity Plan.

(e) "***Change in Control Period***" means the period commencing one month prior to the Closing of a Change in Control and ending 12 months following the Closing of a Change in Control.

(f) "***Closing***" means the initial closing of the Change in Control as defined in the definitive agreement executed in connection with the Change in Control. In the case of a series of transactions constituting a Change in Control, "Closing" means the first closing that satisfies the threshold of the definition for a Change in Control.

(g) "***Code***" means the Internal Revenue Code of 1986, as amended, including any applicable regulations and guidance thereunder.

(h) "***Committee***" means the Board of Directors or the Compensation Committee of the Board of Directors of the Company.

(i) "***Company***" means Poseida Therapeutics, Inc. or, following a Change in Control, the surviving entity resulting from such event.

(j) "***Confidentiality Agreement***" means the Company's standard form of Proprietary Information and Invention Assignment Agreement or any similar or successor document.

(k) "***Covered Termination***" means, with respect to an employee, a termination of employment that is due to (1) a termination by the Company without Cause (and other than as a result of the employee's death or Disability) or (2) the employee's resignation for Good Reason, and in either case of (1) or (2), results in such employee's Separation from Service.

(l) "***Disability***" means any physical or mental condition which renders an employee incapable of performing the work for which he or she was employed by the Company or similar work offered by the Company. The Disability of an employee shall be established if (i) the employee satisfies the requirements for benefits under the Company's long-term disability plan or (ii) if no long-term disability plan, the employee satisfies the requirements for Social Security disability benefits.

(m) "***Eligible Employee***" means an employee of the Company that meets the requirements to be eligible to receive Plan benefits as set forth in Section 2.

(n) "***Equity Plan***" means the Poseida Therapeutics, Inc. 2020 Equity Incentive Plan, as amended from time to time.

(o) "***Good Reason***" for an employee's resignation means the occurrence of any of the following are undertaken by the Company without the employee's written consent:

(1) a material reduction in a such employee's base salary of at least 10% (unless pursuant to a salary reduction program applicable generally to similarly situated employees of the Company);

(2) relocation of such employee's principal place of employment with the Company (or successor to the Company, if applicable) to a place that increases such employee's one-way commute by more than 50 miles as compared to such employee's then-current principal place of employment immediately prior to such relocation;

(3) a material breach by the Company of any provision of this Plan or any other material agreement between such employee and the Company concerning the terms and conditions of such employee's employment with the Company; or

(4) the assignment to the employee of any duties or responsibilities which result in the material diminution of the employee's then-current authority, duties or responsibilities.

Notwithstanding the foregoing, in order for the employee's resignation to be deemed to have been for Good Reason, the employee must (a) provide written notice to the Company of such employee's intent to resign for Good Reason within 30 days after the first occurrence of the event giving rise to Good Reason, which notice shall describe the event(s) the employee believes give rise to Good Reason; (b) allow the Company at least 30 days from receipt of the written notice to cure the event (such period, the "***Cure Period***"), and (c) if the event is not reasonably cured within the Cure Period, the employee's resignation from all positions held with the Company is effective not later than 30 days after the expiration of the Cure Period.

(p) "***IPO Date***" means the date of the underwriting agreement between the Company and the underwriter(s) managing the initial public offering of the Company's Common Stock, pursuant to which the Common Stock is priced for the initial public offering.

(q) "***Participation Agreement***" means an agreement between an employee and the Company in substantially the form of **APPENDIX A** attached hereto, and which may include such other terms as the Committee deems necessary or advisable in the administration of the Plan.

(r) "***Plan Administrator***" means the Committee prior to the Closing and the Representative upon and following the Closing, as applicable.

(s) "***Representative***" means one or more members of the Committee or other persons or entities designated by the Committee prior to or in connection with a Change in Control that will have authority to administer and interpret the Plan upon and following the Closing as provided in Section 8(a).

(t) "***Section 409A***" means Section 409A of the Code and the treasury regulations and other guidance thereunder and any state law of similar effect.

(u) "***Separation from Service***" means a "separation from service" within the meaning of Treasury Regulations Section 1.409A-1(h), without regard to any alternative definition thereunder.

Section 2. ELIGIBILITY FOR BENEFITS.

(a) Eligible Employee. An employee of the Company is eligible to participate in the Plan if (i) the Plan Administrator has designated such employee as eligible to participate in the Plan by providing such employee a Participation Agreement; (ii) such employee has signed and returned such Participation Agreement to the Company within the time period required therein; and (iii) such employee meets the other Plan eligibility requirements set forth in this Section 2. The determination of whether an employee is an Eligible Employee shall be made by the Plan Administrator, in its sole discretion, and such determination shall be binding and conclusive on all persons.

(b) Release Requirement. Except as otherwise provided in an individual Participation Agreement, in order to be eligible to receive benefits under the Plan, the employee also must execute a general waiver and release, in such a form as provided by the Company (the "***Release***"), within the applicable time period set forth therein, and such Release must become effective in accordance with its terms, which must occur in no event more than 60 days following the date of the applicable Covered Termination.

(c) Plan Benefits Provided In Lieu of Any Previous Benefits. Except as otherwise provided in an individual Participation Agreement, this Plan shall supersede any change in control or severance benefit plan, policy or practice previously maintained by the Company with respect to an Eligible Employee and any change in control or severance benefits in any individually negotiated employment contract or other agreement between the Company and an Eligible Employee. Notwithstanding the foregoing, the Eligible Employee's outstanding equity awards shall remain subject to the terms of the Equity Plan or other applicable equity plan under which such awards were granted (including the award documentation governing such awards) that may apply upon a Change in Control and/or termination of such employee's service and no provision of this Plan shall be construed as to limit the actions that may be taken, or to violate the terms, thereunder.

(d) Exceptions to Severance Benefit Entitlement. An employee who otherwise is an Eligible Employee will not receive benefits under the Plan in the following circumstances, as determined by the Plan Administrator in its sole discretion:

(1) The employee is terminated by the Company for any reason (including due to the employee's death or Disability) or voluntarily terminates employment with the Company in any manner, and in either case, such termination does not constitute a Covered Termination. Voluntary terminations include, but are not limited to, resignation, retirement or failure to return from a leave of absence on the scheduled date.

(2) The employee voluntarily terminates employment with the Company in order to accept employment with another entity that is wholly or partly owned (directly or indirectly) by the Company or an Affiliate.

(3) The employee is offered an identical or substantially equivalent or comparable position with the Company or an Affiliate. For purposes of the foregoing, a "substantially equivalent or comparable position" is one that provides the employee substantially the same level of responsibility and compensation and would not give rise to the employee's right to a resignation for Good Reason.

(4) The employee is offered immediate reemployment by a successor to the Company or an Affiliate or by a purchaser of the Company's assets, as the case may be, following a Change in Control and the terms of such reemployment would not give rise to the employee's right to a resignation for Good Reason. For purposes of the foregoing, "immediate reemployment" means that the employee's employment with the successor to the Company or an Affiliate or the purchaser of its assets, as the case may be, results in uninterrupted employment such that the employee does not incur a lapse in pay or benefits as a result of the change in ownership of the Company or the sale of its assets. For the avoidance of doubt, an employee who becomes immediately reemployed as described in this Section 2(d)(4) by a successor to the Company or an Affiliate or by a purchaser of the Company's assets, as the case may be, following a Change in Control shall continue to be an Eligible Employee following the date of such reemployment.

(5) The employee is rehired by the Company or an Affiliate and recommences employment prior to the date severance benefits under the Plan are scheduled to commence.

(e) Termination of Severance Benefits. An Eligible Employee's right to receive severance benefits under this Plan shall terminate immediately if, at any time prior to or during the period for which the Eligible Employee is receiving severance benefits under the Plan, the Eligible Employee

(1) willfully breaches any material statutory, common law, or contractual obligation to the Company or an Affiliate (including, without limitation, the contractual obligations set forth in the Confidentiality Agreement and any other confidentiality, non-disclosure and developments agreement, non-competition, non-solicitation, or similar type agreement between the Eligible Employee and the Company, as applicable);

(2) fails to enter into the terms of the Confidentiality Agreement; or

(3) without the prior written approval of the Plan Administrator, engages in a Prohibited Action (as defined below). In addition, if benefits under the Plan have already been paid to Eligible Employee and the Eligible Employee subsequently engages in a Prohibited Action during the Prohibited Period (or it is determined that an Eligible Employee engaged in a Prohibited Action prior to receipt of such benefits), any benefits previously paid to the Eligible Employee shall be subject to recoupment by the Company on such terms and conditions as shall be determined by the Plan Administrator, in its sole discretion. The "***Prohibited Period***" shall commence on the date of the Employee's Covered Termination and continue for the number of months corresponding to the Severance Period set forth in such Eligible Employee's Participation Agreement. A "***Prohibited Action***" shall occur if the Eligible Employee: (i) breaches a material provision of the Confidentiality Agreement and/or any obligations of confidentiality, non-solicitation, non-disparagement, no conflicts or non-competition set forth in the Eligible Employee's employment agreement, offer letter, any other written agreement between the Eligible Employee and the Company, or under applicable law; (ii) encourages or solicits any of the Company's then current employees to leave the Company's employ for any reason or interferes in any other manner with employment relationships at the time existing between the Company and its then current employees; or (iii) induces any of the Company's then current clients, customers, suppliers, vendors, distributors, licensors, licensees, or other third parties to terminate their existing business relationship with the Company or interferes in any other manner with any existing business relationship between the Company and any then current client, customer, supplier, vendor, distributor, licensor, licensee, or other third parties.

Section 3. AMOUNT OF BENEFITS.

(a) Benefits in Participation Agreement. Benefits under the Plan shall be provided to an Eligible Employee as set forth in the Participation Agreement.

(b) **Additional Benefits.** Notwithstanding the foregoing, the Committee may, in its sole discretion, provide benefits to individuals who are not Eligible Employees ("***Non-Eligible Employees***") chosen by the Plan Administrator, in its sole discretion, and the provision of any such benefits to a Non-Eligible Employee shall in no way obligate the Company to provide such benefits to any other individual, even if similarly situated. If benefits under the Plan are provided to a Non-Eligible Employee, references in the Plan to "Eligible Employee" (and similar references) shall be deemed to refer to such Non-Eligible Employee.

(c) Certain Reductions. In addition to Section 2(e) above, the Company, in its sole discretion, shall have the authority to reduce an Eligible Employee's severance benefits, in whole or in part, by any other severance benefits, pay and benefits provided during a period following written notice of a business closing or mass layoff, pay and benefits in lieu of such notice, or other similar benefits payable to the Eligible Employee by the Company or an Affiliate that become payable in connection with the Eligible Employee's termination of employment pursuant to (i) any applicable legal requirement, including, without limitation, the Worker Adjustment and Retraining Notification Act or any other similar state law or (ii) any Company policy or practice providing for the Eligible Employee to remain on the payroll for a limited period of time after being given notice of the termination of the Eligible Employee's employment, and the Plan Administrator shall so construe and implement the terms of the Plan. Any such reductions that the Company determines to make pursuant to this Section 3(c) shall be made such that any severance benefit under the Plan shall be reduced solely by any similar type of benefit under such legal requirement, agreement, policy or practice (*i.e*., any cash severance benefits under the Plan shall be reduced solely by any cash payments or severance benefits under such legal requirement, agreement, policy or practice). The Company's decision to apply such reductions to the severance benefits of one Eligible Employee and the amount of such reductions shall in no way obligate the Company to apply the same reductions in the same amounts to the severance benefits of any other Eligible Employee. In the Company's sole discretion, such reductions may be applied on a retroactive basis, with severance benefits previously paid being re-characterized as payments pursuant to the Company's statutory obligation.

(d) Parachute Payments. Except as otherwise provided in an individual Participation Agreement, if any payment or benefit an Eligible Employee will or may receive from the Company or otherwise (a "***Payment***") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "***Excise Tax***"), then any such Payment shall be equal to the Reduced Amount. The "***Reduced Amount***" shall be either (x) the largest portion of the Payment that would result in no portion of the Payment (after reduction) being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount (i.e., the amount determined by clause (x) or by clause (y)), after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in the Eligible Employee's receipt, on an after-tax basis, of the greater economic benefit notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in a Payment is required pursuant to the preceding sentence and the Reduced Amount is determined pursuant to clause (x) of the preceding sentence, the reduction shall occur in the manner (the "***Reduction Method***") that results in the greatest economic benefit for the Eligible Employee. If more than one method of reduction will result in the same economic benefit, the items so reduced will be reduced pro rata (the "***Pro Rata Reduction Method***").

Notwithstanding any provisions in this Section above to the contrary, if the Reduction Method or the Pro Rata Reduction Method would result in any portion of the Payment being subject to taxes pursuant to Section 409A that would not otherwise be subject to taxes pursuant to Section 409A, then the Reduction Method and/or the Pro Rata Reduction Method, as the case may be, shall be modified so as to avoid the imposition of taxes pursuant to Section 409A as follows: (A) as a first priority, the modification shall preserve to the greatest extent possible, the greatest economic benefit for the Eligible Employee as determined on an after-tax basis; (B) as a second priority, Payments that are contingent on future events (*e.g.*, being terminated without Cause), shall be reduced (or eliminated) before Payments that are not contingent on future events; and (C) as a third priority, Payments that are "deferred compensation" within the meaning of Section 409A shall be reduced (or eliminated) before Payments that are not deferred compensation within the meaning of Section 409A.

The Company shall appoint a nationally recognized accounting or law firm to make the determinations required by this Section. The Company shall bear all expenses with respect to the determinations by such accounting or law firm required to be made hereunder. If the Eligible Employee receives a Payment for which the Reduced Amount was determined pursuant to clause (x) above and the Internal Revenue Service determines thereafter that some portion of the Payment is subject to the Excise Tax, Eligible Employee agrees to promptly return to the Company a sufficient amount of the Payment (after reduction pursuant to clause (x) above) so that no portion of the remaining Payment is subject to the Excise Tax. For the avoidance of doubt, if the Reduced Amount was determined pursuant to clause (y) above, the Eligible Employee shall have no obligation to return any portion of the Payment pursuant to the preceding sentence.

Section 4. RETURN OF COMPANY PROPERTY.

An Eligible Employee will not be entitled to any severance benefit under the Plan unless and until the Eligible Employee returns all Company Property. For this purpose, "***Company Property***" means all paper and electronic Company documents (and all copies thereof) and other Company property which the Eligible Employee had in his or her possession or control at any time, including, but not limited to, Company files, notes, drawings, records, plans, forecasts, reports, studies, analyses, proposals, agreements, financial information, research and development information, sales and marketing information, operational and personnel information, specifications, code, software, databases, computer-recorded information, tangible property and equipment (including, but not limited to, computers, facsimile machines, mobile telephones, servers), credit cards, entry cards, identification badges and keys; and any materials of any kind which contain or embody any proprietary or confidential information of the Company (and all reproductions thereof in whole or in part). As a condition to receiving benefits under the Plan, an Eligible Employee must not make or retain copies, reproductions or summaries of any such Company documents, materials or property. However, an Eligible Employee is not required to return his or her personal copies of documents evidencing the Eligible Employee's hire, termination, compensation, benefits and stock options and any other documentation received as a stockholder of the Company.

Section 5. TIME OF PAYMENT AND FORM OF BENEFITS.

The Company reserves the right in the Participation Agreement to specify whether payments under the Plan will be paid in a single sum, in installments, or in any other form and to determine the timing of such payments. All such payments under the Plan will be subject to applicable withholding for federal, state, foreign, provincial and local taxes. All benefits provided under the Plan are intended to satisfy the requirements for an exemption from application of Section 409A to the maximum extent that an exemption is available and any ambiguities herein shall be interpreted accordingly; *provided, however*, that to the extent such an exemption is not available, the benefits provided under the Plan are intended to comply with the requirements of Section 409A to the extent necessary to avoid adverse personal tax consequences and any ambiguities herein shall be interpreted accordingly.

It is intended that (i) each installment of any benefits payable under the Plan to an Eligible Employee be regarded as a separate "payment" for purposes of Treasury Regulations Section 1.409A-2(b)(2)(i), (ii) all payments of any such benefits under the Plan satisfy, to the greatest extent possible, the exemptions from the application of Section 409A provided under Treasury Regulations Sections 1.409A-1(b)(4), 1.409A-1(b)(5) and 1.409A-1(b)(9)(iii), and (iii) any such benefits consisting of COBRA premiums also satisfy, to the greatest extent possible, the exemption from the application of Section 409A provided under Treasury Regulations Section 1.409A-1(b)(9)(v). However, if the Company determines that any severance benefits payable under the Plan constitute "deferred compensation" under Section 409A and the Eligible Employee is a "specified employee" of the Company, as such term is defined in Section 409A(a)(2)(B)(i), then, solely to the extent necessary to avoid the imposition of the adverse personal tax consequences under Section 409A, (A) the timing of such severance benefit payments shall be delayed until the earlier of (1) the date that is six months and one day after the Eligible Employee's Separation from Service and (2) the date of the Eligible Employee's death (such applicable date, the "***Delayed Initial Payment Date***"), and (B) the Company shall (1) pay the Eligible Employee a lump sum amount equal to the sum of the severance benefit payments that the Eligible Employee would otherwise have received through the Delayed Initial Payment Date if the commencement of the payment of the severance benefits had not been delayed pursuant to this paragraph and (2) commence paying the balance, if any, of the severance benefits in accordance with the applicable payment schedule.

In no event shall payment of any severance benefits under the Plan be made prior to an Eligible Employee's Separation from Service or prior to the effective date of the Release. If the Company determines that any severance payments or benefits provided under the Plan constitute "deferred compensation" under Section 409A, and the Eligible Employee's Separation from Service occurs at a time during the calendar year when the Release could become effective in the calendar year following the calendar year in which the Eligible Employee's Separation from Service occurs, then regardless of when the Release is returned to the Company and becomes effective, the Release will not be deemed effective, solely for purposes of the timing of payment of severance benefits under this Plan, any earlier than the latest permitted effective date (the "***Release Deadline***"). If the Company determines that any severance payments or benefits

provided under the Plan constitute "deferred compensation" under Section 409A, then except to the extent that severance payments may be delayed until the Delayed Initial Payment Date pursuant to the preceding paragraph, on the first regular payroll date following the effective date of an Eligible Employee's Release, the Company shall (1) pay the Eligible Employee a lump sum amount equal to the sum of the severance benefit payments that the Eligible Employee would otherwise have received through such payroll date but for the delay in payment related to the effectiveness of the Release and (2) commence paying the balance, if any, of the severance benefits in accordance with the applicable payment schedule.

Section 6. TRANSFER AND ASSIGNMENT.

The rights and obligations of an Eligible Employee under this Plan may not be transferred or assigned without the prior written consent of the Company. This Plan shall be binding upon any entity or person who is a successor by merger, acquisition, consolidation or otherwise to the business formerly carried on by the Company without regard to whether or not such entity or person actively assumes the obligations hereunder and without regard to whether or not a Change in Control occurs.

Section 7. MITIGATION.

Except as otherwise specifically provided in the Plan, an Eligible Employee will not be required to mitigate damages or the amount of any payment provided under the Plan by seeking other employment or otherwise, nor will the amount of any payment provided for under the Plan be reduced by any compensation earned by an Eligible Employee as a result of employment by another employer or any retirement benefits received by such Eligible Employee after the date of the Eligible Employee's termination of employment with the Company.

Section 8. CLAWBACK; RECOVERY.

All payments and severance benefits provided under the Plan will be subject to recoupment in accordance with any clawback policy that the Company is required to adopt pursuant to the listing standards of any national securities exchange or association on which the Company's securities are listed or as is otherwise required by the Dodd-Frank Wall Street Reform and Consumer Protection Act or other applicable law. In addition, the Plan Administrator may impose such other clawback, recovery or recoupment provisions as the Plan Administrator determines necessary or appropriate, including but not limited to a reacquisition right in respect of previously acquired shares of common stock of the Company or other cash or property upon the occurrence of a termination of employment for Cause. No recovery of compensation under such a clawback policy will be an event giving rise to a right to resign for Good Reason, constructive termination, or any similar term under any plan of or agreement with the Company.

Section 9. RIGHT TO INTERPRET AND ADMINISTER PLAN; AMENDMENT AND TERMINATION.

(a) Interpretation and Administration. Prior to the Closing, the Committee shall be the Plan Administrator and shall have the exclusive discretion and authority to establish rules, forms, and procedures for the administration of the Plan and to construe and interpret the Plan and to decide any and all questions of fact, interpretation, definition, computation or

administration arising in connection with the operation of the Plan, including, but not limited to, the eligibility to participate in the Plan and amount of benefits paid under the Plan. The rules, interpretations, computations and other actions of the Committee shall be binding and conclusive on all persons. Upon and after the Closing, the Plan will be interpreted and administered in good faith by the Representative who shall be the Plan Administrator during such period. All actions taken by the Representative in interpreting the terms of the Plan and administering the Plan upon and after the Closing will be final and binding on all Eligible Employees. Any references in this Plan to the "Committee" or "Plan Administrator" with respect to periods following the Closing shall mean the Representative.

(b) Amendment. The Plan Administrator reserves the right to amend this Plan at any time; *provided, however,* that any amendment of the Plan will not be effective as to a particular employee who is or may be adversely impacted by such amendment or termination and has an effective Participation Agreement without the written consent of such employee.

(c) Termination. Unless otherwise extended by the Committee, the Plan will automatically terminate following satisfaction of all the Company's obligations under the Plan.

Section 10. NO IMPLIED EMPLOYMENT CONTRACT.

The Plan shall not be deemed (i) to give any employee or other person any right to be retained in the employ of the Company or (ii) to interfere with the right of the Company to discharge any employee or other person at any time, with or without cause, which right is hereby reserved. This Plan does not modify the at-will employment status of any Eligible Employee.

Section 11. LEGAL CONSTRUCTION.

This Plan is intended to be governed by and shall be construed in accordance with the Employee Retirement Income Security Act of 1974 ("***ERISA***") and, to the extent not preempted by ERISA, the laws of the State of California.

Section 12. CLAIMS, INQUIRIES AND APPEALS.

(a) Applications for Benefits and Inquiries. Any application for benefits, inquiries about the Plan or inquiries about present or future rights under the Plan must be submitted to the Plan Administrator in writing by an applicant (or his or her authorized representative). The Plan Administrator is:

Poseida Therapeutics, Inc.
Compensation Committee of the Board of Directors or Representative
Attention to: Corporate Secretary
9390 Towne Centre Drive, Suite 200
San Diego, California 92121

(b) Denial of Claims. In the event that any application for benefits is denied in whole or in part, the Plan Administrator must provide the applicant with written or electronic notice of the denial of the application, and of the applicant's right to review the denial. Any electronic notice will comply with the regulations of the U.S. Department of Labor. The notice of denial will be set forth in a manner designed to be understood by the applicant and will include the following:

(1) the specific reason or reasons for the denial;

(2) references to the specific Plan provisions upon which the denial is based;

(3) a description of any additional information or material that the Plan Administrator needs to complete the review and an explanation of why such information or material is necessary; and

(4) an explanation of the Plan's review procedures and the time limits applicable to such procedures, including a statement of the applicant's right to bring a civil action under Section 502(a) of ERISA following a denial on review of the claim, as described in Section 10(d) below.

This notice of denial will be given to the applicant within 90 days after the Plan Administrator receives the application, unless special circumstances require an extension of time, in which case, the Plan Administrator has up to an additional 90 days for processing the application. If an extension of time for processing is required, written notice of the extension will be furnished to the applicant before the end of the initial 90 day period.

This notice of extension will describe the special circumstances necessitating the additional time and the date by which the Plan Administrator is to render its decision on the application.

(c) Request for a Review. Any person (or that person's authorized representative) for whom an application for benefits is denied, in whole or in part, may appeal the denial by submitting a request for a review to the Plan Administrator within 60 days after the application is denied. A request for a review shall be in writing and shall be addressed to:

Poseida Therapeutics, Inc.
Compensation Committee of the Board of Directors or Representative
Attention to: Corporate Secretary
9390 Towne Centre Drive, Suite 200
San Diego, California 92121

A request for review must set forth all of the grounds on which it is based, all facts in support of the request and any other matters that the applicant feels are pertinent. The applicant (or his or her representative) shall have the opportunity to submit (or the Plan Administrator may require the applicant to submit) written comments, documents, records, and other information relating to his or her claim. The applicant (or his or her representative) shall be provided, upon request and free of charge, reasonable access to, and copies of, all documents, records and other information relevant to his or her claim. The review shall take into account all comments, documents, records and other information submitted by the applicant (or his or her representative) relating to the claim, without regard to whether such information was submitted or considered in the initial benefit determination.

(d) Decision on Review. The Plan Administrator will act on each request for review within 60 days after receipt of the request, unless special circumstances require an extension of time (not to exceed an additional 60 days), for processing the request for a review. If an extension for review is required, written notice of the extension will be furnished to the applicant within the initial 60 day period. This notice of extension will describe the special circumstances necessitating the additional time and the date by which the Plan Administrator is to render its decision on the review. The Plan Administrator will give prompt, written or electronic notice of its decision to the applicant. Any electronic notice will comply with the regulations of the U.S. Department of Labor. In the event that the Plan Administrator confirms the denial of the application for benefits in whole or in part, the notice will set forth, in a manner calculated to be understood by the applicant, the following:

(1) the specific reason or reasons for the denial;

(2) references to the specific Plan provisions upon which the denial is based;

(3) a statement that the applicant is entitled to receive, upon request and free of charge, reasonable access to, and copies of, all documents, records and other information relevant to his or her claim; and

(4) a statement of the applicant's right to bring a civil action under Section 502(a) of ERISA.

(e) Rules and Procedures. The Plan Administrator will establish rules and procedures, consistent with the Plan and with ERISA, as necessary and appropriate in carrying out its responsibilities in reviewing benefit claims. The Plan Administrator may require an applicant who wishes to submit additional information in connection with an appeal from the denial of benefits to do so at the applicant's own expense.

(f) Exhaustion of Remedies. No legal action for benefits under the Plan may be brought until the applicant (i) has submitted a written application for benefits in accordance with the procedures described by Section 10(a) above, (ii) has been notified by the Plan Administrator that the application is denied, (iii) has filed a written request for a review of the application in accordance with the appeal procedure described in Section 10(c) above, and (iv) has been notified that the Plan Administrator has denied the appeal. Notwithstanding the foregoing, if the Plan Administrator does not respond to an Eligible Employee's claim or appeal within the relevant time limits specified in this Section 10, the Eligible Employee may bring legal action for benefits under the Plan pursuant to Section 502(a) of ERISA.

Section 13. BASIS OF PAYMENTS TO AND FROM PLAN.

The Plan shall be unfunded, and all cash payments under the Plan shall be paid only from the general assets of the Company.

Section 14. OTHER PLAN INFORMATION.

(a) Employer and Plan Identification Numbers. The Employer Identification Number assigned to the Company (which is the "Plan Sponsor" as that term is used in ERISA) by the Internal Revenue Service is 47-3898435. The Plan Number assigned to the Plan by the Plan Sponsor pursuant to the instructions of the Internal Revenue Service is [_____].

(b) Ending Date for Plan's Fiscal Year. The date of the end of the fiscal year for the purpose of maintaining the Plan's records is December 31.

(c) Agent for the Service of Legal Process. The agent for the service of legal process with respect to the Plan is:

Poseida Therapeutics, Inc.
Attention to: Corporate Secretary
9390 Towne Centre Drive, Suite 200
San Diego, California 92121

In addition, service of legal process may be made upon the Plan Administrator.

(d) Plan Sponsor. The "Plan Sponsor" is:

Poseida Therapeutics, Inc.
9390 Towne Centre Drive, Suite 200
San Diego, California 92121
(858) 779-3100

(e) Plan Administrator. The Plan Administrator is the Committee prior to the Closing and the Representative upon and following the Closing. The Plan Administrator's contact information is:

Poseida Therapeutics, Inc.
Compensation Committee of the Board of Directors or Representative
9390 Towne Centre Drive, Suite 200
San Diego, California 92121

The Plan Administrator is the named fiduciary charged with the responsibility for administering the Plan.

Section 15. STATEMENT OF ERISA RIGHTS.

Participants in this Plan (which is a welfare benefit plan sponsored by Poseida Therapeutics, Inc.) are entitled to certain rights and protections under ERISA. If you are an Eligible Employee, you are considered a participant in the Plan and, under ERISA, you are entitled to:

(a) Receive Information About Your Plan and Benefits

(1) Examine, without charge, at the Plan Administrator's office and at other specified locations, such as worksites, all documents governing the Plan and a copy of the latest annual report (Form 5500 Series), if applicable, filed by the Plan with the U.S. Department of Labor and available at the Public Disclosure Room of the Employee Benefits Security Administration;

(2) Obtain, upon written request to the Plan Administrator, copies of documents governing the operation of the Plan and copies of the latest annual report (Form 5500 Series), if applicable, and an updated (as necessary) Summary Plan Description. The Administrator may make a reasonable charge for the copies; and

(3) Receive a summary of the Plan's annual financial report, if applicable. The Plan Administrator is required by law to furnish each Eligible Employee with a copy of this summary annual report.

(b) Prudent Actions by Plan Fiduciaries. In addition to creating rights for Plan Eligible Employees, ERISA imposes duties upon the people who are responsible for the operation of the employee benefit plan. The people who operate the Plan, called "fiduciaries" of the Plan, have a duty to do so prudently and in the interest of you and other Eligible Employees and beneficiaries. No one, including your employer, your union or any other person, may fire you or otherwise discriminate against you in any way to prevent you from obtaining a Plan benefit or exercising your rights under ERISA.

(c) Enforce Your Rights. If your claim for a Plan benefit is denied or ignored, in whole or in part, you have a right to know why this was done, to obtain copies of documents relating to the decision without charge, and to appeal any denial, all within certain time schedules.

Under ERISA, there are steps you can take to enforce the above rights. For instance, if you request a copy of Plan documents or the latest annual report from the Plan, if applicable, and do not receive them within 30 days, you may file suit in a Federal court. In such a case, the court may require the Plan Administrator to provide the materials and pay you up to $110 a day until you receive the materials, unless the materials were not sent because of reasons beyond the control of the Plan Administrator.

If you have a claim for benefits which is denied or ignored, in whole or in part, you may file suit in a state or Federal court.

If you are discriminated against for asserting your rights, you may seek assistance from the U.S. Department of Labor, or you may file suit in a Federal court. The court will decide who should pay court costs and legal fees. If you are successful, the court may order the person you have sued to pay these costs and fees. If you lose, the court may order you to pay these costs and fees, for example, if it finds your claim is frivolous.

(d) Assistance with Your Questions. If you have any questions about the Plan, you should contact the Plan Administrator. If you have any questions about this statement or about your rights under ERISA, or if you need assistance in obtaining documents from the Plan Administrator, you should contact the nearest office of the Employee Benefits Security Administration, U.S. Department of Labor, listed in your telephone directory or the Division of

Technical Assistance and Inquiries, Employee Benefits Security Administration, U.S. Department of Labor, 200 Constitution Avenue N.W., Washington, D.C. 20210. You may also obtain certain publications about your rights and responsibilities under ERISA by calling the publications hotline of the Employee Benefits Security Administration.

APPENDIX A

PARTICIPATION AGREEMENT

APPENDIX A

PARTICIPATION AGREEMENT

Name: _____

Section 1. ELIGIBILITY.

You have been designated as eligible to participate in the Poseida Therapeutics, Inc. Severance and Change in Control Plan (the "***Plan***"), a copy of which is attached to this Participation Agreement (the "***Participation Agreement***"). Capitalized terms not explicitly defined in this Participation Agreement but defined in the Plan shall have the same definitions as in the Plan. You will receive the benefits set forth below if you meet all the eligibility requirements set forth in the Plan, including, without limitation, executing the required Release within the applicable time period set forth therein and allowing such Release to become effective in accordance with its terms. Notwithstanding the schedule for provision of benefits as set forth below, the schedule and timing of payment of any benefits under this Participant Agreement is subject to any delay in payment that may be required under Section 5 of the Plan.

Section 2. CHANGE IN CONTROL SEVERANCE BENEFITS.

If you are terminated in a Covered Termination that occurs during the Change in Control Period, you will receive the severance benefits set forth in this Section 2. All severance benefits described herein are subject to standard deductions and withholdings.

(a) Base Salary. You shall receive a cash payment in an amount equal to [_____][1] months (the "***Severance Period***") of payment of your Base Salary. The Base Salary payment will be paid to you in a lump sum cash payment no later than the second regular payroll date following the later of (i) the effective date of the Release or (ii) the Closing, but in any event not later than March 15 of the year following the year in which your Separation from Service occurs.

(b) Bonus Payment. You will be entitled to the annual target cash bonus established for you, if any, pursuant to the annual performance bonus or annual variable compensation plan established by the Board of Directors or Committee (or any authorized committee or designee thereof) for the year in which your Covered Termination occurs. If at the time of the Covered Termination you are eligible for the annual target cash bonus for the year in which the Covered Termination occurs, but the target percentage (or target dollar amount, if specified as such in the applicable bonus plan) for such bonus has not yet been established for such year, the target percentage shall be the target percentage established for you for the preceding year (but adjusted, if necessary for your position for the year in which the Covered Termination occurs). For the avoidance of doubt, the amount of the annual target bonus to which you are entitled under this Section 2(b) will be calculated (1) assuming all articulated performance goals for such bonus (including, but not limited to, corporate and individual performance, if applicable), for the year of the Covered Termination was achieved at target levels; (2) as if you had provided services for the entire year for which the bonus relates; and (3) ignoring any reduction in your Base Salary that

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1 Insert 18 months for CEO, 12 months for C-Suite, 9 months for SVP level and 6 months for VP level.

would give rise to your right to resignation for Good Reason (such bonus to which you are entitled under this Section 2(b), the "***Annual Target Bonus Severance Payment***"). The Annual Target Bonus Severance Payment shall be paid in a lump sum cash payment no later than the second regular payroll date following the later of (i) the effective date of the Release or (ii) the Closing, but in any event not later than March 15 of the year following the year in which your Separation from Service occurs.

(c) Payment of Continued Group Health Plan Benefits. If you timely elect continued group health plan continuation coverage under the Consolidated Omnibus Budget Reconciliation Act of 1985 ("***COBRA***") following your Covered Termination date, the Company shall pay directly to the carrier the full amount of your COBRA premiums on behalf of you for your continued coverage under the Company's group health plans, including coverage for your eligible dependents, until the earliest of (i) the end of the Severance Period following the date of your Covered Termination, (ii) the expiration of your eligibility for the continuation coverage under COBRA, or (iii) the date when you become eligible for substantially equivalent health insurance coverage in connection with new employment (such period from your termination date through the earliest of (i) through (iii), the "***COBRA Payment Period***"). Upon the conclusion of such period of insurance premium payments made by the Company, you will be responsible for the entire payment of premiums (or payment for the cost of coverage) required under COBRA for the duration of your eligible COBRA coverage period, if any. For purposes of this Section, (1) references to COBRA shall be deemed to refer also to analogous provisions of state law and (2) any applicable insurance premiums that are paid by the Company shall not include any amounts payable by you under an Internal Revenue Code Section 125 health care reimbursement plan, which amounts, if any, are your sole responsibility. You agree to promptly notify the Company as soon as you become eligible for health insurance coverage in connection with new employment or self-employment.

Notwithstanding the foregoing, if at any time the Company determines, in its sole discretion, that it cannot provide the COBRA premium benefits without potentially incurring financial costs or penalties under applicable law (including, without limitation, Section 2716 of the Public Health Service Act), then in lieu of paying COBRA premiums directly to the carrier on your behalf, the Company will instead pay you on the last day of each remaining month of the COBRA Payment Period a fully taxable cash payment equal to the value of your monthly COBRA premium for the first month of COBRA coverage, subject to applicable tax withholding (such amount, the "***Special Severance Payment***"), such Special Severance Payment to be made without regard to your election of COBRA coverage or payment of COBRA premiums and without regard to your continued eligibility for COBRA coverage during the COBRA Payment Period. Such Special Severance Payment shall end upon expiration of the COBRA Payment Period.

(d) Equity Acceleration. The vesting and exercisability of each outstanding unvested stock option and other stock award, as applicable, that you hold covering Company common stock as of the date of your Covered Termination (each, an "***Equity Award***") that is subject to time-vesting shall be accelerated in full and any reacquisition or repurchase rights held by the Company in respect of Company common stock issued pursuant to any time-vesting Equity Award granted to you shall lapse in full. To the extent your Covered Termination occurs prior to the Change in Control, the acceleration set forth in this Section 2(d) shall be contingent and effective upon the Change in Control and your Equity Awards will remain outstanding following your Covered Termination to give effect to such acceleration as necessary. For the avoidance of doubt, any Equity Awards subject to performance-vesting shall vest and become exercisable according to their individual award agreements.

(e) [Extension of Post-Termination Exercise Period. All outstanding Equity Awards which carry a right to exercise that you hold as of the date of your Covered Termination will expire on the earlier of (A) the original term of such outstanding Equity Awards as set forth in the applicable award agreement or the equity incentive plan, subject to earlier termination in the event of a Change in Control as set forth in the terms of the applicable equity incentive plan and definitive agreement for such Change in Control transaction, and (B) the date which is 24 months following your Covered Termination.][2]

Section 3. NON-CHANGE IN CONTROL SEVERANCE BENEFITS. If you are terminated in a Covered Termination that occurs at a time that is not during the Change in Control Period, you will receive:

(a) the base salary cash payment described in Section 2(a) above, but the Severance Period for purposes of calculating such benefits shall be [_____][3] months; and

(b) the COBRA benefits described in Section 2(c) above, but the Severance Period for purposes of calculating such benefits shall be [_____][4] months.

You shall not be eligible to receive any other benefits under the Plan except as described in Section 2(a) and Section 2(c) above.

For the avoidance of doubt, in no event shall you be entitled to benefits under both Section 2 and this Section 3. If you are eligible for severance benefits under both Section 2 and this Section 3, you shall receive the benefits set forth in Section 2 and such benefits shall be reduced by any benefits previously provided to you under Section 3.

Section 4. CHANGE IN CONTROL ACCELERATION UPON ACQUIROR'S FAILURE TO ASSUME, CONTINUE OR SUBSTITUTE. If (i) in connection with a Change in Control, any outstanding unvested Equity Award that you hold will not be assumed or continued by the successor or acquiror entity (or its parent company) in such Change in Control or substituted for a similar award of the successor or acquiror entity (or its parent company) (a "***Terminating Award***") and (ii) your continued employment with the Company has not terminated as of immediately prior to the effective time of such Change in Control, then you will become vested, with respect to any then unvested portion of such Terminating Award, effective immediately prior to, but subject to the consummation of such Change in Control. With respect to any such outstanding Terminating Award that is subject to performance-vesting, unless otherwise provided in the individual grant notice and award agreement evidencing such award, such performance-vesting award will accelerate vesting at 100% of the target level. For the avoidance of doubt, the benefits under this Section 4 are contingent on a Change in Control and do not require your Covered Termination or other termination of service. In addition, you may be eligible for benefits under this Section 4 in addition to benefits under Section 2 or Section 3 and in such case, you shall receive benefits under both sections, without duplication.

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2 Insert bracketed provision for CEO.

3 Insert 12 months for CEO, 9 months for C-Suite, 6 months for SVP level and 3 months for VP level.

4 Insert 12 months for CEO, 9 months for C-Suite, 6 months for SVP level and 3 months for VP level.

Section 5. ACKNOWLEDGEMENTS; INTERACTION WITH PRIOR BENEFITS.

As a condition to participation in the Plan, you hereby acknowledge each of the following:

(a) The benefits that may be provided to you under this Participation Agreement are subject to certain reductions and termination under Section 2 and Section 3 of the Plan.

(b) Your eligibility for and receipt of any severance benefits to which you may become entitled as described in Section 2 or Section 3 above is expressly contingent upon your execution of and compliance with the terms and conditions of the Plan, the Release and the Confidentiality Agreement. Severance benefits under this Participation Agreement shall immediately cease in the event of your violation of the provisions of Confidentiality Agreement or any other written agreement with the Company.

(c) As further described in Section 2(c) of the Plan, this Participation Agreement and the Plan supersede and replace any change in control or severance benefits previously provided to you, including but not limited to any benefits under your employment or other written agreement or plan, [except that Section 7 of your Executive Employment Agreement with the Company dated June 1, 2015 shall continue in full force and effect and supersede Section 3(d) of the Plan][5] and by executing below you expressly agree to such treatment.

To accept the terms of this Participation Agreement and participate in the Plan, please sign and date this Agreement in the space provided below and return it to _____ no later than _____, ____.

Poseida Therapeutics, Inc.

By: _____

_____

_____

Eligible Employee

_____
[Insert Name]

Date: _____

[5] Insert bracketed provision for CEO.

POSEIDA THERAPEUTICS, INC.
NON-EMPLOYEE DIRECTOR COMPENSATION POLICY
ADOPTED: JULY 1, 2020

Each member of the Board of Directors (the "***Board***") of Poseida Therapeutics, Inc. (the "***Company***") who is a non-employee director of the Company (each such member, a "***Non-Employee Director***") will receive the compensation described in this Non-Employee Director Compensation Policy (the "***Director Compensation Policy***") for his or her Board service following the closing of the initial public offering of the Company's common stock (the "***IPO***").

The Director Compensation Policy will be effective upon the execution of the underwriting agreement in connection with the IPO (the date of such execution being referred to as the "***IPO Date***"). The Director Compensation Policy may be amended at any time in the sole discretion of the Board or the Compensation Committee of the Board.

A Non-Employee Director may decline all or any portion of his or her compensation by giving notice to the Company prior to the date cash is to be paid or equity awards are to be granted, as the case may be.

Annual Cash Compensation

Commencing at the beginning of the first calendar quarter following the IPO Date, each Non-Employee Director will receive the cash compensation set forth below for service on the Board. The annual cash compensation amounts will be payable in equal quarterly installments, in arrears following the end of each quarter in which the service occurred, pro-rated for any partial months of service. All annual cash fees are vested upon payment.

1. Annual Board Service Retainer:
    a. All Eligible Directors: $40,000
    b. Independent Chairman of the Board (in addition to Eligible Director Annual Board Service Retainer): $30,000
    c. Lead Independent Director (in addition to Eligible Director Annual Board Service Retainer): $20,000
2. Annual Committee Member Service Retainer:
    a. Member of the Audit Committee: $7,500
    b. Member of the Compensation Committee: $5,000
    c. Member of the Nominating and Corporate Governance Committee: $4,000
3. Annual Committee Chair Service Retainer (in lieu of the Annual Committee Member Service Retainer):
    a. Chairman of the Audit Committee: $15,000
    b. Chairman of the Compensation Committee: $10,000
    c. Chairman of the Nominating and Corporate Governance Committee: $8,000

Equity Compensation

Equity awards will be granted under the Company's 2020 Equity Incentive Plan (the "***Plan***"), adopted in connection with the IPO. All stock options granted under this Director Compensation Policy will be Nonstatutory Stock Options (as defined in the Plan), with an exercise price per share equal to 100% of the Fair Market Value (as defined in the Plan) of the underlying common stock of the Company on the date of grant, and a term of ten years from the date of grant (subject to earlier termination in connection with a termination of service as provided in the Plan, provided that upon a termination of service other than for death, Disability or Cause (as each such term is defined in the Plan), the post-termination exercise period will be 12 months from the date of termination).

(a) Automatic Equity Grants.

(i) Initial Grant for New Directors. Without any further action of the Board, each person who, after the IPO Date, is elected or appointed for the first time to be a Non-Employee Director will automatically, upon the date of his or her initial election or appointment to be a Non-Employee Director (or, if such date is not a market trading day, the first market trading day thereafter), be granted a Nonstatutory Stock Option to purchase 40,000 shares of common stock of the Company (the "***Initial Option Grant***"). Each Initial Option Grant will vest in a series of 36 successive equal monthly installments over the three-year period measured from the date of grant.

(ii) Annual Grant. Without any further action of the Board, at the close of business on the date of each Annual Meeting of the stockholders of the Company ("***Annual Meeting***") following the IPO, each person who is then a Non-Employee Director will automatically be granted a Nonstatutory Stock Option to purchase 20,000 shares of common stock (the "***Annual Option Grant***"). Each Annual Option Grant will vest at the earlier of (i) the one-year anniversary of the date of grant and (ii) the day immediately prior to the next Annual Meeting.

(b) Vesting; Change in Control. All vesting is subject to the Non-Employee Director's "***Continuous Service***" (as defined in the Plan) on each applicable vesting date. Notwithstanding the foregoing vesting schedules, for each Non-Employee Director who remains in Continuous Service with the Company until immediately prior to the closing of a "***Change in Control***" (as defined in the Plan), the shares subject to his or her then-outstanding equity awards that were granted pursuant to this Director Compensation Policy will become fully vested immediately prior to the closing of such Change in Control.

(c) Remaining Terms. The remaining terms and conditions of each award, including transferability, will be as set forth in the Company's Director Option Grant Package in the form adopted from time to time by the Board.

Expenses

The Company will reimburse a Non-Employee Director for ordinary, necessary and reasonable out-of-pocket travel expenses to cover in-person attendance at and participation in Board and committee meetings; *provided*, that such Non-Employee Director timely submit to the Company appropriate documentation substantiating such expenses in accordance with the Company's travel and expense policy, as in effect from time to time.

LOAN AND SECURITY AGREEMENT

THIS LOAN AND SECURITY AGREEMENT (as the same may from time to time be amended, modified, supplemented or restated, this "**Agreement**") dated as of July 25, 2017 (the "**Effective Date**") among OXFORD FINANCE LLC, a Delaware limited liability company with an office located at 133 North Fairfax Street, Alexandria, Virginia 22314 ("**Oxford**"), as collateral agent (in such capacity, "**Collateral Agent**"), the Lenders listed on Schedule 1.1 hereof or otherwise a party hereto from time to time including Oxford in its capacity as a Lender (each a "**Lender**" and collectively, the "**Lenders**"), and POSEIDA THERAPEUTICS, INC., a Delaware corporation with offices located at 4242 Campus Point Court, Suite 700, San Diego, California 92121 ("**Parent**"), VINDICO NANOBIOTECHNOLOGY LLC, a Delaware limited liability company and a wholly owned subsidiary of Parent with offices located at A264 ASTeCC 145 Graham Ave., Lexington, KY 40506 ("**US Sub**") and POSEIDA THERAPEUTICS CYM, an exempted company organized under the laws of the Cayman Islands and a wholly owned subsidiary of the Parent having a registered office at c/o International Corporation Services Ltd., Harbour Place, 2nd Floor, 103 South Church Street, P.O. Box 472, GeorgeTown, Grand Cayman KY1-1106 Cayman Islands ("**Cayman Sub**," and together with the Parent and the US Sub, individually and collectively, jointly and severally, "**Borrower**"), provides the terms on which the Lenders shall lend to Borrower and Borrower shall repay the Lenders. The parties agree as follows:

1. ACCOUNTING AND OTHER TERMS

1.1 Accounting terms not defined in this Agreement shall be construed in accordance with GAAP. Calculations and determinations must be made in accordance with GAAP. Capitalized terms not otherwise defined in this Agreement shall have the meanings set forth in Section 13. All other terms contained in this Agreement, unless otherwise indicated, shall have the meaning provided by the Code to the extent such terms are defined therein. All references to "**Dollars**" or "**$**" are United States Dollars, unless otherwise noted.

2. LOANS AND TERMS OF PAYMENT

2.1 Promise to Pay. Borrower hereby unconditionally promises to pay each Lender, the outstanding principal amount of all Term Loans advanced to Borrower by such Lender and accrued and unpaid interest thereon and any other amounts due hereunder as and when due in accordance with this Agreement.

2.2 Term Loans.

(a) Availability. (i) Subject to the terms and conditions of this Agreement, the Lenders agree, severally and not jointly, to make term loans to Borrower on the Effective Date in an aggregate amount of Ten Million Dollars ($10,000,000.00) according to each Lender's Term A Loan Commitment as set forth on Schedule 1.1 hereto (such term loans are hereinafter referred to singly as a "**Term A Loan**", and collectively as the "**Term A Loans**"). After repayment, no Term A Loan may be re-borrowed.

(ii) Subject to the terms and conditions of this Agreement, the Lenders agree, severally and not jointly, during the Second Draw Period, to make term loans to Borrower in an aggregate amount up to Five Million Dollars ($5,000,000.00) according to each Lender's Term B Loan Commitment as set forth on Schedule 1.1 hereto (such term loans are hereinafter referred to singly as a "**Term B Loan**", and collectively as the "**Term B Loans**"; each Term A Loan or Term B Loan is hereinafter referred to singly as a "**Term Loan**" and the Term A Loans and the Term B Loans are hereinafter referred to collectively as the "**Term Loans**"). After repayment, no Term B Loan may be re-borrowed.

(b) Repayment. Borrower shall make monthly payments of interest only commencing on the first (1st) Payment Date following the Funding Date of each Term Loan, and continuing on the Payment Date of each successive month thereafter through and including the Payment Date immediately preceding the Amortization Date. Borrower agrees to pay, on the Funding Date of each Term Loan, any initial partial monthly interest payment otherwise due for the period between the Funding Date of such Term Loan and the first Payment Date thereof. Commencing on the Amortization Date, and continuing on the Payment Date of each month thereafter, Borrower shall make consecutive equal monthly payments of principal, together with applicable interest, in arrears, to each

Lender, as calculated by Collateral Agent (which calculations shall be deemed correct absent manifest error) based upon: (1) the amount of such Lender's Term Loan, (2) the effective rate of interest, as determined in Section 2.3(a), and (3) a repayment schedule equal to (i) thirty-six (36) months, if the Term B Loans are not made hereunder and (ii) thirty (30) months, if the Term B Loans are made hereunder. All unpaid principal and accrued and unpaid interest with respect to each Term Loan is due and payable in full on the Maturity Date. Each Term Loan may only be prepaid in accordance with Sections 2.2(c) and 2.2(d).

(c) Mandatory Prepayments. If the Term Loans are accelerated following the occurrence of an Event of Default, Borrower shall immediately pay to Lenders, payable to each Lender in accordance with its respective Pro Rata Share, an amount equal to the sum of: (i) all outstanding principal of the Term Loans plus accrued and unpaid interest thereon through the prepayment date, (ii) the Final Payment, (iii) the Prepayment Fee, plus (iv) all other Obligations that are due and payable, including Lenders' Expenses and interest at the Default Rate with respect to any past due amounts. Notwithstanding (but without duplication with) the foregoing, on the Maturity Date, if the Final Payment had not previously been paid in full in connection with the prepayment of the Term Loans in full, Borrower shall pay to Collateral Agent, for payment to each Lender in accordance with its respective Pro Rata Share, the Final Payment in respect of the Term Loan(s).

(d) Permitted Prepayment of Term Loans. Borrower shall have the option to prepay all, but not less than all, of the Term Loans advanced by the Lenders under this Agreement, provided Borrower (i) provides written notice to Collateral Agent of its election to prepay the Term Loans at least ten (10) days prior to such prepayment, and (ii) pays to the Lenders on the date of such prepayment, payable to each Lender in accordance with its respective Pro Rata Share, an amount equal to the sum of (A) all outstanding principal of the Term Loans plus accrued and unpaid interest thereon through the prepayment date, (B) the Final Payment, (C) the Prepayment Fee, plus (D) all other Obligations that are due and payable, including Lenders' Expenses and interest at the Default Rate with respect to any past due amounts.

2.3 Payment of Interest on the Credit Extensions.

(a) Interest Rate. Subject to Section 2.3(b), the principal amount outstanding under the Term Loans shall accrue interest at a floating per annum rate equal to the Basic Rate, determined by Collateral Agent on the Funding Date of the applicable Term Loan and then monthly thereafter, which interest shall be payable monthly in arrears in accordance with Sections 2.2(b) and 2.3(e). Interest shall accrue on each Term Loan commencing on, and including, the Funding Date of such Term Loan, and shall accrue on the principal amount outstanding under such Term Loan through and including the day on which such Term Loan is paid in full.

(b) Default Rate. Immediately upon the occurrence and during the continuance of an Event of Default, Obligations shall accrue interest at a floating per annum rate equal to the rate that is otherwise applicable thereto plus five percentage points (5.00%) (the "**Default Rate**"). Payment or acceptance of the increased interest rate provided in this Section 2.3(b) is not a permitted alternative to timely payment and shall not constitute a waiver of any Event of Default or otherwise prejudice or limit any rights or remedies of Collateral Agent.

(c) 360-Day Year. Interest shall be computed on the basis of a three hundred sixty (360) day year, and the actual number of days elapsed.

(d) Debit of Accounts. Collateral Agent and each Lender may debit (or ACH) any deposit accounts, maintained by Borrower or any of its Subsidiaries, including the Designated Deposit Account, for principal and interest payments or any other amounts Borrower owes the Lenders under the Loan Documents when due. Any such debits (or ACH activity) shall not constitute a set-off.

(e) Payments. Except as otherwise expressly provided herein, all payments by Borrower under the Loan Documents shall be made to the respective Lender to which such payments are owed, at such Lender's office in immediately available funds on the date specified herein. Unless otherwise provided, interest is payable monthly on the Payment Date of each month. Payments of principal and/or interest received after 12:00 noon Eastern time are considered received at the opening of business on the next Business Day. When a payment is due on a day that is not a Business Day, the payment is due the next Business Day and additional fees or interest, as applicable, shall continue to accrue until paid. All payments to be made by Borrower hereunder or under any other Loan Document, including payments of principal and interest, and all fees, expenses, indemnities and reimbursements, shall be made without set-off, recoupment or counterclaim, in lawful money of the United States and in immediately available funds.

2.4 Secured Promissory Notes. The Term Loans shall be evidenced by a Secured Promissory Note or Notes in the form attached as Exhibit D hereto (each a "**Secured Promissory Note**"), and shall be repayable as set forth in this Agreement. Borrower irrevocably authorizes each Lender to make or cause to be made, on or about the Funding Date of any Term Loan or at the time of receipt of any payment of principal on such Lender's Secured Promissory Note, an appropriate notation on such Lender's Secured Promissory Note Record reflecting the making of such Term Loan or (as the case may be) the receipt of such payment. The outstanding amount of each Term Loan set forth on such Lender's Secured Promissory Note Record shall be prima facie evidence of the principal amount thereof owing and unpaid to such Lender, but the failure to record, or any error in so recording, any such amount on such Lender's Secured Promissory Note Record shall not limit or otherwise affect the obligations of Borrower under any Secured Promissory Note or any other Loan Document to make payments of principal of or interest on any Secured Promissory Note when due. Upon receipt of an affidavit of an officer of a Lender as to the loss, theft, destruction, or mutilation of its Secured Promissory Note**,** Borrower shall issue, in lieu thereof, a replacement Secured Promissory Note in the same principal amount thereof and of like tenor.

2.5 Fees. Borrower shall pay to Collateral Agent:

(a) Facility Fee. A fully earned, non-refundable facility fee of Seventy Five Thousand Dollars ($75,000.00) to be shared between the Lenders pursuant to their respective Commitment Percentages payable on the Effective Date;

(b) Good Faith Deposit. An amount of Thirty Thousand Dollars ($30,000.00) has been received by Collateral Agent as good faith deposit from Borrower on or about June 27, 2017, which amount shall be applied towards the facility fee due under Section 2.5(a) hereof on the Effective Date. For the purposes of clarity, Borrower shall be responsible for the entire amount of facility fee payable pursuant to Section 2.5(a) hereof.

(c) Final Payment. The Final Payment, when due hereunder, to be shared between the Lenders in accordance with their respective Pro Rata Shares;

(d) Prepayment Fee. The Prepayment Fee, when due hereunder, to be shared between the Lenders in accordance with their respective Pro Rata Shares; and

(e) Lenders' Expenses. All Lenders' Expenses (including reasonable attorneys' fees and expenses for documentation and negotiation of this Agreement) incurred through and after the Effective Date, when due.

2.6 Withholding. Payments received by the Lenders from Borrower hereunder will be made free and clear of and without deduction for any and all present or future taxes, levies, imposts, duties, deductions, withholdings, assessments, fees or other charges imposed by any governmental authority (including any interest, additions to tax or penalties applicable thereto). Specifically, however, if at any time any Governmental Authority, applicable law, regulation or international agreement requires Borrower to make any withholding or deduction from any such payment or other sum payable hereunder to the Lenders, Borrower hereby covenants and agrees that the amount due from Borrower with respect to such payment or other sum payable hereunder will be increased to the extent necessary to ensure that, after the making of such required withholding or deduction, each Lender receives a net sum equal to the sum which it would have received had no withholding or deduction been required and Borrower shall pay the full amount withheld or deducted to the relevant Governmental Authority. Borrower will, upon request, furnish the Lenders with proof reasonably satisfactory to the Lenders indicating that Borrower has made such withholding payment; provided, however, that Borrower need not make any withholding payment if the amount or validity of such withholding payment is contested in good faith by appropriate and timely proceedings and as to which payment in full is bonded or reserved against by Borrower. The agreements and obligations of Borrower contained in this Section 2.6 shall survive the termination of this Agreement.

3. CONDITIONS OF LOANS

3.1 Conditions Precedent to Initial Credit Extension. Each Lender's obligation to make a Term A Loan is subject to the condition precedent that Collateral Agent and each Lender shall consent to or shall have received, in form and substance satisfactory to Collateral Agent and each Lender, such documents, and completion of such other matters, as Collateral Agent and each Lender may reasonably deem necessary or appropriate, including, without limitation:

(a) original Loan Documents, each duly executed by Borrower and each Subsidiary, as applicable;

(b) duly executed original Control Agreements with respect to any Collateral Accounts maintained by Borrower or any of its Subsidiaries;

(c) duly executed original Secured Promissory Notes in favor of each Lender according to its Term A Loan Commitment Percentage;

(d) the certificate(s) for the Shares, together with Assignment(s) Separate from Certificate, or in the case of the Shares of the Cayman Sub, share transfers, duly executed in blank;

(e) the Operating Documents and good standing certificates of Borrower and its Subsidiaries certified by the Secretary of State (or equivalent agency or registered office, as applicable) of Borrower's and such Subsidiaries' jurisdiction of organization or formation and each jurisdiction in which Borrower and each Subsidiary is qualified to conduct business, (or in the case of the Cayman Sub certified as true copies of the originals by a Cayman Islands attorney at law) each as of a date no earlier than thirty (30) days prior to the Effective Date**;**

(f) a completed Perfection Certificate for Borrower and each of its Subsidiaries;

(g) the Annual Projections, for the current calendar year;

(h) duly executed original officer's certificate for Borrower and each Subsidiary that is a party to the Loan Documents, in a form acceptable to Collateral Agent and the Lenders;

(i) certified copies, dated as of date no earlier than thirty (30) days prior to the Effective Date, of financing statement searches, as Collateral Agent shall request, accompanied by written evidence (including any UCC termination statements) that the Liens indicated in any such financing statements either constitute Permitted Liens or have been or, in connection with the initial Credit Extension, will be terminated or released;

(j) a landlord's consent executed in favor of Collateral Agent in respect of all of Borrower's San Diego headquarters;

(k) a duly executed legal opinion of counsel to Parent and US Sub dated as of the Effective Date;

(l) evidence satisfactory to Collateral Agent and the Lenders that the insurance policies required by Section 6.5 hereof are in full force and effect, together with appropriate evidence showing loss payable and/or additional insured clauses or endorsements in favor of Collateral Agent, for the ratable benefit of the Lenders;

(m) a copy of any applicable Registration Rights Agreement or Investors' Rights Agreement and any amendments thereto;

(n) evidence satisfactory to Collateral Agent of the receipt by Borrower of unrestricted net cash proceeds in the aggregate amount of Ten Million Dollars ($10,000,000.00) or more from the sale of Borrower's Series A-1 Preferred Stock, after June 23, 2017 and on or before the July 21, 2017; and

(o) payment of the fees and Lenders' Expenses then due as specified in Section 2.5 hereof.

3.2 Conditions Precedent to all Credit Extensions. The obligation of each Lender to make each Credit Extension, including the initial Credit Extension, is subject to the following conditions precedent:

(a) receipt by Collateral Agent of an executed Disbursement Letter in the form of Exhibit B attached hereto;

(b) the representations and warranties in Section 5 hereof shall be true, accurate and complete in all material respects on the date of the Disbursement Letter and on the Funding Date of each Credit Extension; provided, however, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided, further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date, and no Event of Default shall have occurred and be continuing or result from the Credit Extension. Each Credit Extension is Borrower's representation and warranty on that date that the representations and warranties in Section 5 hereof are true, accurate and complete in all material respects; provided, however, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided, further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date;

(c) in such Lender's sole and reasonable discretion, there has not been any Material Adverse Change or any material adverse deviation by Borrower from the Annual Projections of Borrower presented to and accepted by Collateral Agent and each Lender;

(d) to the extent not delivered at the Effective Date, duly executed original Secured Promissory Notes and Warrants, in number, form and content acceptable to each Lender, and in favor of each Lender according to its Commitment Percentage, with respect to each Credit Extension made by such Lender after the Effective Date; and

(e) payment of the fees and Lenders' Expenses then due as specified in Section 2.5 hereof.

3.3 Covenant to Deliver. Borrower agrees to deliver to Collateral Agent and the Lenders each item required to be delivered to Collateral Agent under this Agreement as a condition precedent to any Credit Extension. Borrower expressly agrees that a Credit Extension made prior to the receipt by Collateral Agent or any Lender of any such item shall not constitute a waiver by Collateral Agent or any Lender of Borrower's obligation to deliver such item, and any such Credit Extension in the absence of a required item shall be made in each Lender's sole discretion.

3.4 Procedures for Borrowing. Subject to the prior satisfaction of all other applicable conditions to the making of a Term Loan set forth in this Agreement, to obtain a Term Loan, Borrower shall notify the Lenders (which notice shall be irrevocable) by electronic mail, facsimile, or telephone by 12:00 noon Eastern time three (3) Business Days prior to the date the Term Loan is to be made. Together with any such electronic, facsimile or telephonic notification, Borrower shall deliver to the Lenders by electronic mail or facsimile a completed Disbursement Letter executed by a Responsible Officer or his or her designee. The Lenders may rely on any telephone notice given by a person whom a Lender reasonably believes is a Responsible Officer or designee. On the Funding Date, each Lender shall credit and/or transfer (as applicable) to the Designated Deposit Account, an amount equal to its Term Loan Commitment.

4. CREATION OF SECURITY INTEREST

4.1 Grant of Security Interest. Borrower hereby grants Collateral Agent, for the ratable benefit of the Lenders, to secure the payment and performance in full of all of the Obligations, a continuing security interest in, and pledges to Collateral Agent, for the ratable benefit of the Lenders, the Collateral, wherever located, whether now owned or hereafter acquired or arising, and all proceeds and products thereof. Borrower represents, warrants, and

covenants that the security interest granted herein is and shall at all times continue to be a first priority perfected security interest in the Collateral, subject only to Permitted Liens that are permitted by the terms of this Agreement to have priority to Collateral Agent's Lien, subject to exceptions in the Cayman Debenture, dated as of the date hereof, between the Collateral Agent and Cayman Sub. If Borrower shall acquire a commercial tort claim (as defined in the Code), Borrower, shall promptly notify Collateral Agent in a writing signed by Borrower, after Borrower becomes aware of such tort claim, as the case may be, of the general details thereof (and further details as may be required by Collateral Agent) and grant to Collateral Agent, for the ratable benefit of the Lenders, in such writing a security interest therein and in the proceeds thereof, all upon the terms of this Agreement, with such writing to be in form and substance reasonably satisfactory to Collateral Agent.

If this Agreement is terminated, Collateral Agent's Lien in the Collateral shall continue until the Obligations (other than inchoate indemnity obligations) are repaid in full in cash. Upon payment in full in cash of the Obligations (other than inchoate indemnity obligations) and at such time as the Lenders' obligation to make Credit Extensions has terminated, Collateral Agent shall, at the sole cost and expense of Borrower, release its Liens in the Collateral and all rights therein shall revert to Borrower.

4.2 Authorization to File Financing Statements. Borrower hereby authorizes Collateral Agent to file financing statements or take any other action required to perfect Collateral Agent's security interests in the Collateral, without notice to Borrower, with all appropriate jurisdictions to perfect or protect Collateral Agent's interest or rights under the Loan Documents, including a notice that any disposition of the Collateral, except to the extent permitted by the terms of this Agreement, by Borrower, or any other Person, shall be deemed to violate the rights of Collateral Agent under the Code. The Borrower shall also ensure that the register of mortgages and charges of Cayman Sub maintained at its registered office shall be updated to reflect each security grant under the Loan Documents.

4.3 Pledge of Collateral. Borrower hereby pledges, assigns and grants to Collateral Agent, for the ratable benefit of the Lenders, a security interest in all the Shares, together with all proceeds and substitutions thereof, all cash, stock and other moneys and property paid thereon, all rights to subscribe for securities declared or granted in connection therewith, and all other cash and noncash proceeds of the foregoing, as security for the performance of the Obligations. On the Effective Date, or, to the extent not certificated as of the Effective Date, within ten (10) days of the certification of any Shares, the certificate or certificates for the Shares (if any) will be delivered to Collateral Agent, accompanied by an instrument of assignment or share transfer form duly executed in blank by Borrower. To the extent required by the terms and conditions governing the Shares, Borrower shall cause the books (or register of members, as applicable) of each entity whose Shares are part of the Collateral and any transfer agent to reflect the pledge of the Shares. Upon the occurrence and during the continuance of an Event of Default hereunder, Collateral Agent may effect the transfer of any securities included in the Collateral (including but not limited to the Shares) into the name of Collateral Agent and cause new (as applicable) certificates representing such securities to be issued in the name of Collateral Agent or its transferee. Borrower will execute and deliver such documents, and take or cause to be taken such actions, as Collateral Agent may reasonably request to perfect or continue the perfection of Collateral Agent's security interest in the Shares. Unless an Event of Default shall have occurred and be continuing, Borrower shall be entitled to exercise any voting rights with respect to the Shares and to give consents, waivers and ratifications in respect thereof, provided that no vote shall be cast or consent, waiver or ratification given or action taken which would be inconsistent with any of the terms of this Agreement or which would constitute or create any violation of any of such terms. All such rights to vote and give consents, waivers and ratifications shall terminate upon the occurrence and continuance of an Event of Default.

5. REPRESENTATIONS AND WARRANTIES

Borrower represents and warrants to Collateral Agent and the Lenders as follows:

5.1 Due Organization, Authorization: Power and Authority. Borrower and each of its Subsidiaries is duly existing and in good standing as a Registered Organization in its jurisdictions of organization, incorporation or formation and Borrower and each of its Subsidiaries is qualified and licensed to do business and is in good standing in any jurisdiction in which the conduct of its businesses or its ownership of property requires that it be qualified except where the failure to do so could not reasonably be expected to have a Material Adverse Change. In connection with this Agreement, Borrower and each of its Subsidiaries has delivered to Collateral Agent a

completed perfection certificate signed by an officer of Borrower or such Subsidiary (each as updated from time to time, as permitted hereunder, a "**Perfection Certificate**" and collectively, the "**Perfection Certificates**"). Borrower represents and warrants that (a) Borrower and each of its Subsidiaries' exact legal name is that which is indicated on its respective Perfection Certificate and on the signature page of each Loan Document to which it is a party; (b) Borrower and each of its Subsidiaries is an organization of the type and is organized in the jurisdiction set forth on its respective Perfection Certificate; (c) each Perfection Certificate accurately sets forth each of Borrower's and its Subsidiaries' organizational identification number or accurately states that Borrower or such Subsidiary has none; (d) each Perfection Certificate accurately sets forth Borrower's and each of its Subsidiaries' place of business, or, if more than one, its chief executive office as well as Borrower's and each of its Subsidiaries' mailing address (if different than its chief executive office); (e) Borrower and each of its Subsidiaries (and each of its respective predecessors) have not, in the past five (5) years, changed its jurisdiction of organization, organizational structure or type, or any organizational or registration number assigned by its jurisdiction; and (f) all other information set forth on the Perfection Certificates pertaining to Borrower and each of its Subsidiaries, is accurate and complete (it being understood and agreed that Borrower and each of its Subsidiaries may from time to time update certain information in the Perfection Certificates (including the information set forth in clause (d) above) after the Effective Date to the extent permitted by one or more specific provisions in this Agreement); such updated Perfection Certificates subject to the review and approval of Collateral Agent. If Borrower or any of its Subsidiaries is not now a Registered Organization but later becomes one, Borrower shall notify Collateral Agent of such occurrence and provide Collateral Agent with such Person's organizational identification number within five (5) Business Days of receiving such organizational identification number.

The execution, delivery and performance by Borrower and each of its Subsidiaries of the Loan Documents to which it is a party have been duly authorized, and do not (i) conflict with any of Borrower's or such Subsidiaries' organizational documents, including its respective Operating Documents, (ii) contravene, conflict with, constitute a default under or violate any material Requirement of Law applicable thereto, (iii) contravene, conflict or violate any applicable order, writ, judgment, injunction, decree, determination or award of any Governmental Authority by which Borrower or such Subsidiary, or any of their property or assets may be bound or affected, (iv) require any action by, filing, registration, or qualification with, or Governmental Approval from, any Governmental Authority (except such Governmental Approvals which have already been obtained and are in full force and effect) or are being obtained pursuant to Section 6.1(b), or (v) constitute an event of default under any material agreement by which Borrower or any of such Subsidiaries, or their respective properties, is bound. Neither Borrower nor any of its Subsidiaries is in default under any agreement to which it is a party or by which it or any of its assets is bound in which such default could reasonably be expected to have a Material Adverse Change.

5.2 Collateral.

(a) Borrower and each its Subsidiaries have good title to, have rights in, and the power to transfer each item of the Collateral upon which it purports to grant a Lien under the Loan Documents, free and clear of any and all Liens except Permitted Liens, and neither Borrower nor any of its Subsidiaries have any Deposit Accounts, Securities Accounts, Commodity Accounts or other investment accounts other than the Collateral Accounts or the other investment accounts, if any, described in the Perfection Certificates delivered to Collateral Agent in connection herewith (as the same may be updated from time to time, provided that any such updates shall be in form and substance acceptable to Collateral Agent and each Lender, in its sole discretion) with respect of which Borrower or such Subsidiary has given Collateral Agent notice and taken such actions as are necessary to give Collateral Agent a perfected security interest therein. The Accounts are bona fide, existing obligations of the Account Debtors.

(b) On the Effective Date, except as disclosed on the Perfection Certificate on the Effective Date, (i) the Collateral is not in the possession of any third party bailee (such as a warehouse), and (ii) no such third party bailee possesses components of the Collateral in excess of One Hundred Thousand Dollars ($100,000). None of the components of the Collateral with a value in excess of Two Hundred Fifty Thousand Dollars ($250,000) shall be maintained at locations other than (i) as disclosed in the Perfection Certificates on the Effective Date, (ii) with storage facilities, contract manufacturers or at clinical sites, for so long as such Collateral constitutes of noncommercial clinical compounds, or as permitted pursuant to Section 6.11.

(c) All Inventory is in all material respects of good and marketable quality, free from material defects.

(d) Borrower and each of its Subsidiaries is the sole owner of the Intellectual Property each respectively purports to own, free and clear of all Liens other than Permitted Liens. Except as noted on the Perfection Certificates, neither Borrower nor any of its Subsidiaries is a party to, nor is bound by, any material license or other material agreement with respect to which Borrower or such Subsidiary is the licensee that (i) prohibits or otherwise restricts Borrower or its Subsidiaries from granting a security interest in Borrower's or such Subsidiaries' interest in such material license or material agreement or any other property, or (ii) for which a default under or termination of could interfere with Collateral Agent's or any Lender's right to sell any Collateral. Borrower shall provide written notice to Collateral Agent and each Lender within ten (10) days of Borrower or any of its Subsidiaries entering into or becoming bound by any license or agreement with respect to which Borrower or any Subsidiary is the licensee (other than over-the-counter software that is commercially available to the public).

5.3 Litigation. Except as disclosed (i) on the Perfection Certificates, or (ii) in accordance with Section 6.9 hereof, there are no actions, suits, investigations, or proceedings pending or, to the knowledge of the Responsible Officers, threatened in writing by or against Borrower or any of its Subsidiaries involving more than One Hundred Fifty Thousand Dollars ($150,000.00).

5.4 No Material Deterioration in Financial Condition; Financial Statements. All consolidated financial statements for Borrower and its Subsidiaries, delivered to Collateral Agent fairly present, in conformity with GAAP, in all material respects the consolidated financial condition of Borrower and its Subsidiaries, and the consolidated results of operations of Borrower and its Subsidiaries as of the dates and for the periods presented. Lender understands that interim financial statements may not be audited and may be subject to normal year-end adjustments and the absence of footnotes. There has not been any material deterioration in the consolidated financial condition of Borrower and its Subsidiaries since the date of the most recent financial statements submitted to any Lender.

5.5 Solvency. (i) Parent is Solvent and (ii) Borrower and its Subsidiaries are Solvent, on a consolidated basis.

5.6 Regulatory Compliance. Neither Borrower nor any of its Subsidiaries is an "investment company" or a company "controlled" by an "investment company" under the Investment Company Act of 1940, as amended. Neither Borrower nor any of its Subsidiaries is engaged as one of its important activities in extending credit for margin stock (under Regulations X, T and U of the Federal Reserve Board of Governors). Borrower and each of its Subsidiaries has complied in all material respects with the Federal Fair Labor Standards Act. Neither Borrower nor any of its Subsidiaries is a "holding company" or an "affiliate" of a "holding company" or a "subsidiary company" of a "holding company" as each term is defined and used in the Public Utility Holding Company Act of 2005. Neither Borrower nor any of its Subsidiaries has violated any laws, ordinances or rules, the violation of which could reasonably be expected to have a Material Adverse Change. Neither Borrower's nor any of its Subsidiaries' properties or assets has been used by Borrower or such Subsidiary or, to Borrower's knowledge, by previous Persons, in disposing, producing, storing, treating, or transporting any hazardous substance other than in material compliance with applicable laws. Borrower and each of its Subsidiaries has obtained all consents, approvals and authorizations of, made all declarations or filings with, and given all notices to, all Governmental Authorities that are necessary to continue their respective businesses as currently conducted.

None of Borrower, any of its Subsidiaries, or any of Borrower's or its Subsidiaries' Affiliates or any of their respective agents acting or benefiting in any capacity in connection with the transactions contemplated by this Agreement is (i) in violation of any Anti-Terrorism Law, (ii) engaging in or conspiring to engage in any transaction that evades or avoids, or has the purpose of evading or avoiding or attempts to violate, any of the prohibitions set forth in any Anti-Terrorism Law, or (iii) is a Blocked Person. None of Borrower, any of its Subsidiaries, or to the knowledge of Borrower and any of their Affiliates or agents, acting or benefiting in any capacity in connection with the transactions contemplated by this Agreement, (x) conducts any business or engages in making or receiving any contribution of funds, goods or services to or for the benefit of any Blocked Person, or (y) deals in, or otherwise engages in any transaction relating to, any property or interest in property blocked pursuant to Executive Order No. 13224, any similar executive order or other Anti-Terrorism Law.

5.7 Investments. Neither Borrower nor any of its Subsidiaries owns any stock, shares, partnership interests or other equity securities except for Permitted Investments.

5.8 Tax Returns and Payments; Pension Contributions. Borrower and each of its Subsidiaries has timely filed all required tax returns and reports, and Borrower and each of its Subsidiaries, has timely paid all foreign, federal, state, and material local taxes, assessments, deposits and contributions (i.e. local taxes, assessments, deposits and contributions in an aggregate amount of $25,000 or more) owed by Borrower and such Subsidiaries, in all jurisdictions in which Borrower or any such Subsidiary is subject to taxes, including the United States, unless such taxes are being contested in accordance with the following sentence. Borrower and each of its Subsidiaries, may defer payment of any contested taxes, provided that Borrower or such Subsidiary, (a) in good faith contests its obligation to pay the taxes by appropriate proceedings promptly and diligently instituted and conducted, (b) notifies Collateral Agent in writing of the commencement of, and any material development in, the proceedings, and (c) posts bonds or takes any other steps required to prevent the Governmental Authority levying such contested taxes from obtaining a Lien upon any of the Collateral that is other than a "**Permitted Lien**." Neither Borrower nor any of its Subsidiaries is aware of any claims or adjustments proposed for any of Borrower's or such Subsidiaries', prior tax years which could result in additional taxes becoming due and payable by Borrower or its Subsidiaries. Borrower and each of its Subsidiaries have paid all amounts necessary to fund all present pension, profit sharing and deferred compensation plans in accordance with their terms, and neither Borrower nor any of its Subsidiaries have, withdrawn from participation in, and have not permitted partial or complete termination of, or permitted the occurrence of any other event with respect to, any such plan which could reasonably be expected to result in any liability of Borrower or its Subsidiaries, including any liability to the Pension Benefit Guaranty Corporation or its successors or any other Governmental Authority.

5.9 Use of Proceeds. Borrower shall use the proceeds of the Credit Extensions solely as working capital and to fund its general business requirements in accordance with the provisions of this Agreement, and not for personal, family, household or agricultural purposes.

5.10 Shares. Borrower has full power and authority to create a first lien on the Shares and no disability or contractual obligation exists that would prohibit Borrower from pledging the Shares pursuant to this Agreement or the Cayman Share Mortgage or any other applicable Loan Document. To Borrower's knowledge, there are no subscriptions, warrants, rights of first refusal or other restrictions on transfer relative to, or options exercisable with respect to the Shares. The Shares have been and will be duly authorized and validly issued, and are fully paid and non-assessable. To Borrower's knowledge, the Shares are not the subject of any present or threatened suit, action, arbitration, administrative or other proceeding, and Borrower knows of no reasonable grounds for the institution of any such proceedings.

5.11 Full Disclosure. No written representation, warranty or other statement of Borrower or any of its Subsidiaries in any certificate or written statement given to Collateral Agent or any Lender, as of the date such representation, warranty, or other statement was made, taken together with all such written certificates and written statements given to Collateral Agent or any Lender, contains any untrue statement of a material fact or omits to state a material fact necessary to make the statements contained in the certificates or statements not misleading (it being recognized that the projections and forecasts provided by Borrower in good faith and based upon reasonable assumptions are not viewed as facts and that actual results during the period or periods covered by such projections and forecasts may differ from the projected or forecasted results).

5.12 Definition of "**Knowledge.**" For purposes of the Loan Documents, whenever a representation or warranty is made to Borrower's knowledge or awareness, to the "best of" Borrower's knowledge, or with a similar qualification, knowledge or awareness means the actual knowledge, after reasonable investigation, of the Responsible Officers.

6. AFFIRMATIVE COVENANTS

Borrower shall, and shall cause each of its Subsidiaries to, do all of the following:

6.1 Government Compliance.

(a) Maintain its and all its Subsidiaries' legal existence and good standing in their respective jurisdictions of organization and maintain qualification in each jurisdiction in which the failure to so qualify could reasonably be expected to have a Material Adverse Change. Comply with all laws, ordinances and regulations to which Borrower or any of its Subsidiaries is subject, the noncompliance with which could reasonably be expected to have a Material Adverse Change.

(b) Obtain and keep in full force and effect, all of the material Governmental Approvals necessary for the performance by Borrower and its Subsidiaries of their respective businesses and obligations under the Loan Documents and the grant of a security interest to Collateral Agent for the ratable benefit of the Lenders, in all of the Collateral. Borrower shall promptly provide copies to Collateral Agent of any material Governmental Approvals obtained by Borrower or any of its Subsidiaries.

6.2 Financial Statements, Reports, Certificates.

(a) Deliver to each Lender:

(i) as soon as available, but no later than thirty (30) days after the last day of each month, a company prepared consolidated balance sheet, income statement and cash flow statement covering the consolidated operations of Parent and its Subsidiaries for such month certified by a Responsible Officer and in a form reasonably acceptable to Collateral Agent;

(ii) as soon as available, but no later than one hundred eighty (180) days after the last day of Parent's fiscal year or within five (5) days of filing with the SEC, audited consolidated financial statements prepared under GAAP, consistently applied, together with an unqualified opinion on the financial statements from an independent certified public accounting firm acceptable to Collateral Agent in its reasonable discretion (other than any "going concern" solely in connection with the need to raise equity and negative profits);

(iii) as soon as available after approval thereof by Parent's Board of Directors, but no later than sixty (60) days after the last day of Parent's fiscal years, Parent's annual financial projections for the entire current fiscal year as approved by Parent's Board of Directors, which such annual financial projections shall be set forth in a quarter-by-quarter format (such annual financial projections as originally delivered to Collateral Agent and the Lenders are referred to herein as the "**Annual Projections**"; provided that, any revisions of the Annual Projections approved by Parent's Board of Directors shall be delivered to Collateral Agent and the Lenders no later than seven (7) days after such approval);

(iv) within five (5) days of delivery, copies of all statements, reports and notices made available to Borrower's security holders or holders of Subordinated Debt;

(v) in the event that Borrower becomes subject to the reporting requirements under the Securities Exchange Act of 1934, as amended, within five (5) days of filing, all reports on Form 10-K, 10-Q and 8-K filed with the Securities and Exchange Commission,

(vi) prompt notice of any material changes to the capitalization table of Borrower and of any changes to the Operating Documents of Borrower or any of its Subsidiaries, together with any copies reflecting such amendments or changes with respect thereto;

(vii) prompt notice of any event that could reasonably be expected to materially and adversely affect the value of the Intellectual Property;

(viii) as soon as available, but no later than thirty (30) days after the last day of each month, copies of the month-end account statements for each Collateral Account maintained by Borrower, which statements may be provided to Collateral Agent and each Lender by Borrower or directly from the applicable institution(s), and

(ix) other information as reasonably requested by Collateral Agent or any Lender.

Notwithstanding the foregoing, documents required to be delivered pursuant to the terms hereof (to the extent any such documents are included in materials otherwise filed with the SEC) may be delivered electronically and if so delivered, shall be deemed to have been delivered on the date on which Borrower posts such documents, or provides a link thereto, on Borrower's website on the internet at Borrower's website address.

(b) Concurrently with the delivery of the financial statements specified in Section 6.2(a)(i) above but no later than thirty (30) days after the last day of each month, deliver to each Lender, a duly completed Compliance Certificate signed by a Responsible Officer.

(c) Keep proper books of record and account in accordance with GAAP in all material respects, in which full, true and correct entries shall be made of all dealings and transactions in relation to its business and activities. Borrower shall, and shall cause each of its Subsidiaries to, allow, at the sole cost of Borrower, Collateral Agent or any Lender, during regular business hours upon reasonable prior notice (provided that no notice shall be required when an Event of Default has occurred and is continuing), to visit and inspect any of its properties, to examine and make abstracts or copies from any of its books and records, and to conduct a collateral audit and analysis of its operations and the Collateral. Such audits shall be conducted no more often than twice every year unless (and more frequently if) an Event of Default has occurred and is continuing.

6.3 Inventory; Returns. Keep all Inventory in good and marketable condition, free from material defects. Returns and allowances between Borrower, or any of its Subsidiaries, and their respective Account Debtors shall follow Borrower's, or such Subsidiary's, customary practices as they exist at the Effective Date. Borrower must promptly notify Collateral Agent and the Lenders of all returns, recoveries, disputes and claims that involve more than One Hundred Thousand Dollars ($100,000.00) individually or in the aggregate in any calendar year.

6.4 Taxes; Pensions. Timely file and require each of its Subsidiaries to timely file, all required tax returns and reports or extensions therefor (which are timely filed and accepted and approved by the applicable Governmental Authority) and timely pay, and require each of its Subsidiaries to timely file, all foreign, federal, state, and local taxes, assessments, deposits and contributions owed by Borrower or its Subsidiaries, except for deferred payment of any taxes contested pursuant to the terms of Section 5.8 hereof, and shall deliver to Lenders, on demand, appropriate certificates attesting to such payments, and pay all amounts necessary to fund all present pension, profit sharing and deferred compensation plans in accordance with the terms of such plans.

6.5 Insurance. Keep Borrower's and its Subsidiaries' business and the Collateral insured for risks and in amounts standard for companies in Borrower's and its Subsidiaries' industry and location and as Collateral Agent may reasonably request. Insurance policies shall be in a form, with companies, and in amounts that are reasonably satisfactory to Collateral Agent and Lenders. All property policies shall have a lender's loss payable endorsement showing Collateral Agent as lender loss payee and waive subrogation against Collateral Agent, and all liability policies shall show, or have endorsements showing, Collateral Agent, as additional insured. The Collateral Agent shall be named as lender loss payee and/or additional insured with respect to any such insurance providing coverage in respect of any Collateral, and each provider of any such insurance shall agree, by endorsement upon the policy or policies issued by it or by independent instruments furnished to the Collateral Agent, that it will give the Collateral Agent thirty (30) days prior written notice before any such policy or policies shall be materially altered or canceled. At Collateral Agent's request, Borrower shall deliver certified copies of policies and evidence of all premium payments. Proceeds payable under any policy shall, at Collateral Agent's option, be payable to Collateral Agent, for the ratable benefit of the Lenders, on account of the Obligations. Notwithstanding the foregoing, (a) so long as no Event of Default has occurred and is continuing, Borrower shall have the option of applying the proceeds of any casualty policy up to One Hundred Thousand Dollars ($100,000.00) with respect to any loss, but not exceeding One Hundred Thousand Dollars ($100,000.00), in the aggregate for all losses under all casualty policies in any one year, toward the replacement or repair of destroyed or damaged property; provided that any such replaced

or repaired property (i) shall be of equal or like value as the replaced or repaired Collateral and (ii) shall be deemed Collateral in which Collateral Agent has been granted a first priority security interest, and (b) after the occurrence and during the continuance of an Event of Default, all proceeds payable under such casualty policy shall, at the option of Collateral Agent, be payable to Collateral Agent, for the ratable benefit of the Lenders, on account of the Obligations. If Borrower or any of its Subsidiaries fails to obtain insurance as required under this Section 6.5 or to pay any amount or furnish any required proof of payment to third persons, Collateral Agent and/or any Lender may make, at Borrower's expense, all or part of such payment or obtain such insurance policies required in this Section 6.5, and take any action under the policies Collateral Agent or such Lender deems prudent.

6.6 Operating Accounts.

(a) Maintain all of Borrower's Collateral Accounts in accounts which are subject to a Control Agreement in favor of Collateral Agent, which Control Agreement must be in such form and substances as is reasonably acceptable to Collateral Agent (it being agreed and understood that the Control Agreements that Collateral Agent is entering into with respect to Borrower's Collateral Accounts maintained with Bank of America on the Effective Date are not in such form and substance as is not reasonably satisfactory to Collateral Agent).

(b) Borrower shall provide Collateral Agent five (5) days' prior written notice before Borrower or any of its Subsidiaries establishes any Collateral Account. In addition, for each Collateral Account that Borrower at any time maintains, Borrower shall cause the applicable bank or financial institution at or with which such Collateral Account is maintained to execute and deliver a Control Agreement or other appropriate instrument with respect to such Collateral Account to perfect Collateral Agent's Lien in such Collateral Account in accordance with the terms hereunder prior to the establishment of such Collateral Account, which Control Agreement must be in such form and substance as is reasonably satisfactory to Collateral Agent and may not be terminated without prior written consent of Collateral Agent. The provisions of the previous sentence and subsection (a) above shall not apply to (i) deposit accounts exclusively used for payroll, payroll taxes and other employee wage and benefit payments to or for the benefit of Borrower's employees and identified to Collateral Agent by Borrower as such in the Perfection Certificates and (ii) BofA Credit Card Account so long as such account is maintained exclusively for the purpose of securitizing Borrower's Indebtedness described in clause (g) of the definition of Permitted Indebtedness and the balance in such account does not exceed Three Hundred One Thousand Dollars ($301,000.00).

(c) Neither Borrower nor any of its Subsidiaries shall maintain any Collateral Accounts except Collateral Accounts maintained in accordance with Sections 6.6(a) and (b); provided, however, Borrower may continue to maintain its Collateral Accounts, set forth on the Perfection Certificates on the Effective Date, with Bank of America; provided, further, that Borrower shall close all of its Collateral Accounts maintained with Bank of America on the Effective Date (other than the BofA Credit Card Account) and deliver to Collateral Agent evidence (in such form and substance as is reasonably acceptable to Collateral Agent) of closure of all of such Collateral Accounts within thirty (30) days after the Effective Date.

6.7 Protection of Intellectual Property Rights. Borrower and each of its Subsidiaries shall: (a) use commercially reasonable efforts to protect, defend and maintain the validity and enforceability of its Intellectual Property that is material to Borrower's business; (b) promptly advise Collateral Agent in writing of material infringement by a third party of its Intellectual Property; and (c) not allow any Intellectual Property material to Borrower's business to be abandoned, forfeited or dedicated to the public without Collateral Agent's prior written consent.

6.8 Litigation Cooperation. Commencing on the Effective Date and continuing through the termination of this Agreement, make available to Collateral Agent and the Lenders, without expense to Collateral Agent or the Lenders, Borrower and each of Borrower's officers, employees and agents and Borrower's Books, to the extent that Collateral Agent or any Lender may reasonably deem them necessary to prosecute or defend any third-party suit or proceeding instituted by or against Collateral Agent or any Lender with respect to any Collateral or relating to Borrower.

6.9 Notices of Litigation and Default. Borrower will give prompt written notice to Collateral Agent and the Lenders of any litigation or governmental proceedings pending or threatened (in writing) against Borrower or any of its Subsidiaries, which could reasonably be expected to result in damages or costs to Borrower or any of its

Subsidiaries of One Hundred Fifty Thousand Dollars ($150,000.00) or more or which could reasonably be expected to have a Material Adverse Change. Without limiting or contradicting any other more specific provision of this Agreement, promptly (and in any event within three (3) Business Days) upon Borrower becoming aware of the existence of any Event of Default or event which, with the giving of notice or passage of time, or both, would constitute an Event of Default, Borrower shall give written notice to Collateral Agent and the Lenders of such occurrence, which such notice shall include a reasonably detailed description of such Event of Default or event which, with the giving of notice or passage of time, or both, would constitute an Event of Default.

6.10 Landlord Waivers; Bailee Waivers. In the event that Borrower or any of its Subsidiaries that are Loan Parties, after the Effective Date, intends to add any new offices or business locations, including warehouses, or otherwise store any portion of the Collateral constituting of the books and records of the Borrower or any of its Subsidiaries or having an aggregate book value in excess of Two Hundred Fifty Thousand Dollars ($250,000.00) (other than at storage facilities or withcontract manufacturers or at clinical sites, in which case the Collateral must comprise only of non-commercial clinical compounds), or deliver any portion of the Collateral to, a bailee, in each case pursuant to Section 7.2, then Borrower or such Loan Party will first receive the written consent of Collateral Agent and, in the event that the new location is the chief executive office of the Borrower or such Loan Party or the Collateral at any such new location is valued in excess of exceed Two Hundred Fifty Thousand Dollars in the aggregate or constituting of the books and records of the Borrower or any Loan Party, such bailee or landlord, as applicable, must execute and deliver a bailee waiver or landlord waiver, as applicable, in form and substance reasonably satisfactory to Collateral Agent prior to the addition of any new offices or business locations, or any such storage with or delivery to any such bailee, as the case may be.

6.11 Creation/Acquisition of Subsidiaries. In the event Borrower, or any of its Subsidiaries creates or acquires any Subsidiary, Borrower shall provide prior written notice to Collateral Agent and each Lender of the creation or acquisition of such new Subsidiary and take all such action as may be reasonably required by Collateral Agent or any Lender to cause each such Subsidiary to become a co-Borrower hereunder or to guarantee the Obligations of Borrower under the Loan Documents and, in each case, grant a continuing pledge and security interest in and to the assets of such Subsidiary (substantially as described on Exhibit A hereto); and Borrower (or its Subsidiary, as applicable) shall grant and pledge to Collateral Agent, for the ratable benefit of the Lenders, a perfected security interest in the Shares; provided, however, that solely in the circumstance in which Borrower or any Subsidiary creates or acquires a Foreign Subsidiary in an acquisition permitted by Section 7.7 hereof or otherwise approved by the Required Lenders, (i) such Foreign Subsidiary shall not be required to guarantee the Obligations of Borrower under the Loan Documents and grant a continuing pledge and security interest in and to the assets of such Foreign Subsidiary, and (ii) Borrower shall not be required to grant and pledge to Collateral Agent, for the ratable benefit of Lenders, a perfected security interest in more than sixty-five percent (65%) of the Shares of such Foreign Subsidiary, if Borrower demonstrates to the reasonable satisfaction of Collateral Agent that such Foreign Subsidiary providing such guarantee or pledge and security interest or Borrower providing a perfected security interest in more than sixty-five percent (65%) of the Shares would create a present and existing adverse tax consequence to Borrower under the U.S. Internal Revenue Code.

6.12 Further Assurances.

(a) Execute any further instruments and take further action as Collateral Agent or any Lender reasonably requests to perfect or continue Collateral Agent's Lien in the Collateral or to effect the purposes of this Agreement.

(b) Deliver to Collateral Agent and Lenders, within five (5) days after the same are sent or received, copies of all material correspondence, reports, documents and other filings with any Governmental Authority that could reasonably be expected to have a material adverse effect on any of the Governmental Approvals material to Borrower's business or otherwise could reasonably be expected to have a Material Adverse Change.

7. NEGATIVE COVENANTS

Borrower shall not, and shall not permit any of its Subsidiaries to, do any of the following without the prior written consent of the Required Lenders:

7.1 Dispositions. Convey, sell, lease, transfer, assign, or otherwise dispose of (collectively, "**Transfer**"), or permit any of its Subsidiaries to Transfer, all or any part of its business or property, except for Transfers (a) of Inventory in the ordinary course of business; (b) of worn out, surplus or obsolete Equipment; and (c) in connection with Permitted Liens, Permitted Investments and Permitted Licenses; (d) from any Subsidiary of Borrower to Borrower or between Borrowers; (e) of cash and Cash Equivalents in connection with transactions not prohibited hereunder, in the ordinary course of business and approved by the Borrower's Board of Directors or consistent with the then applicable Annual Projections; and (f) other Transfers of property having a book value not exceeding exceed Two Hundred Fifty Thousand Dollars ($250,000.00) in the aggregate during any fiscal year.

7.2 Changes in Business, Management, Ownership, or Business Locations. (a) Engage in or permit any of its Subsidiaries to engage in any business other than the businesses engaged in by Borrower as of the Effective Date or reasonably related thereto; (b) liquidate, wind-up or dissolve; or (c) (i) any Key Person shall cease to be employed by, or actively engaged in the management of, Borrower unless written notice thereof is provided to Collateral Agent within five (5) days of such change, or (ii) enter into any transaction or series of related transactions in which the stockholders of Borrower who were not stockholders immediately prior to the first such transaction own more than forty nine percent (49%) of the voting stock of Borrower immediately after giving effect to such transaction or related series of such transactions (other than by the sale of Borrower's equity securities in a public offering, a private placement of public equity or to venture capital investors so long as Borrower identifies to Collateral Agent the venture capital investors prior to the closing of the transaction). Borrower shall not, without at least thirty (30) days' prior written notice to Collateral Agent: (A) add any new offices or business locations, including warehouses (unless such new offices or business locations (i) contain less than Two Hundred Fifty Thousand Dollars ($250,000.00) in assets or property of Borrower or its Subsidiaries, (ii) do not contain any books or records of Borrower or its Subsidiaries, (iii) are not Borrower's or its Subsidiaries' chief executive office and (iv) such new locations contain only non-commercial clinical compounds); (B) change its jurisdiction of organization, (C) change its organizational structure or type, (D) change its legal name, or (E) change any organizational number (if any) assigned by its jurisdiction of organization.

7.3 Mergers or Acquisitions. Merge or consolidate, or permit any of its Subsidiaries to merge or consolidate, with any other Person, or acquire, or permit any of its Subsidiaries to acquire, all or substantially all of the capital stock, shares or property of another Person other than pursuant to a Permitted Investment. A Subsidiary may merge or consolidate into another Subsidiary (provided such surviving Subsidiary is a "co-Borrower" hereunder or has provided a secured Guaranty of Borrower's Obligations hereunder) or with (or into) Borrower provided Borrower is the surviving legal entity, and as long as no Event of Default is occurring prior thereto or arises as a result therefrom. Without limiting the foregoing, Borrower shall not, without Collateral Agent's prior written consent, enter into any binding contractual arrangement with any Person to attempt to facilitate a merger or acquisition of Borrower, unless (i) no Event of Default exists when such agreement is entered into by Borrower, (ii) such agreement does not give such Person the right to claim any fees, payments or damages from Borrower in excess of exceed Three Hundred Thousand Dollars ($300,000.00), as a result of any failure to proceed with or close such merger or acquisition, and (iii) Borrower notifies Collateral Agent in advance of entering into such an agreement.

7.4 Indebtedness. Create, incur, assume, or be liable for any Indebtedness, or permit any Subsidiary to do so, other than Permitted Indebtedness.

7.5 Encumbrance. Create, incur, allow, or suffer any Lien on any of its property, or assign or convey any right to receive income, including the sale of any Accounts, or permit any of its Subsidiaries to do so, except for Permitted Liens, or permit any Collateral not to be subject to the first priority security interest granted herein (except for Permitted Liens that are permitted by the terms of this Agreement to have priority over Collateral Agent's Lien), or enter into any agreement, document, instrument or other arrangement (except with or in favor of Collateral Agent, for the ratable benefit of the Lenders) with any Person which directly or indirectly prohibits or has the effect of prohibiting Borrower, or any of its Subsidiaries, from assigning, mortgaging, pledging, granting a security interest in or upon, or encumbering any of Borrower's or such Subsidiary's Intellectual Property, except as is otherwise permitted in Section 7.1 hereof and the definition of "**Permitted Liens**" herein.

7.6 Maintenance of Collateral Accounts. Maintain any Collateral Account except pursuant to the terms of Section 6.6 hereof.

7.7 Distributions; Investments. (a) Pay any dividends (other than dividends payable solely in capital stock) or make any distribution or payment in respect of or redeem, retire or purchase any capital stock or share capital except that Borrower or any Subsidiary may (i) repurchase the stock of current or former employees, officers, directors or consultants so long as such repurchases do not exceed Two Hundred Fifty Thousand Dollars ($250,000.00) in the aggregate per fiscal year (ii) repurchase stock pursuant to the right of first refusal pursuant to Parent's bylaws, so long as such repurchases do not exceed Two Hundred Fifty Thousand Dollars ($250,000) in the aggregate per fiscal year, (iii) repurchase the stock of current or former employees, officers, directors or consultants pursuant to stock repurchase agreements by the cancellation of indebtedness owed by such former employees provided that the aggregate amount of indebtedness cancelled pursuant to this clause (iii) does not exceed Two Hundred Fifty Thousand Dollars ($250,000) per fiscal year, or (iv) cash payments in lieu of the issuance of fractional shares upon conversion of convertible securities so long as the aggregate amount of such cash payments does not exceed Ten Thousand Dollars ($10,000.00) in any given fiscal year; or (b) directly or indirectly make any Investment other than Permitted Investments, or permit any of its Subsidiaries to do so. For the sake of clarity, Parent's payments to its Subsidiaries for services performed by such Subsidiaries for Borrower in accordance with Section 7.8 are not prohibited under this Agreement because they are not deemed Investments.

7.8 Transactions with Affiliates. Directly or indirectly enter into or permit to exist any material transaction with any Affiliate of Borrower or any of its Subsidiaries, except for (a) transactions that are in the ordinary course of Borrower's or such Subsidiary's business, upon fair and reasonable terms that are no less favorable to Borrower or such Subsidiary than would be obtained in an arm's length transaction with a non-affiliated Person, (b) Subordinated Debt or equity investments by Borrower's investors in Borrower or its Subsidiaries, (c) any transaction expressly allowed under Section 7.1, (d) compensation and indemnification of, and other employment arrangements with, directors, officers and employees of Borrower or any Subsidiary, in each case, entered into in the ordinary course of business in accordance with Borrower's Annual Projections and corporate governance practices, (e) loans and advances otherwise explicitly permitted hereunder to be made to the applicable Affiliate and (f) transactions disclosed in the Borrower's Perfection Certificates on the Effective Date (and without any amendments to the terms of such transactions which amendments would constitute such incremental or new transactions as would require consent of the Required Lenders or Collateral Agent hereunder).

7.9 Subordinated Debt. (a) Make or permit any payment on any Subordinated Debt, except under the terms of the subordination, intercreditor, or other similar agreement to which such Subordinated Debt is subject, or (b) amend any provision in any document relating to the Subordinated Debt which would increase the amount thereof or adversely affect the subordination thereof to Obligations owed to the Lenders.

7.10 Compliance. Become an "investment company" or a company controlled by an "investment company", under the Investment Company Act of 1940, as amended, or undertake as one of its important activities extending credit to purchase or carry margin stock (as defined in Regulation U of the Board of Governors of the Federal Reserve System), or use the proceeds of any Credit Extension for that purpose; fail to meet the minimum funding requirements of ERISA, permit a Reportable Event or Prohibited Transaction, as defined in ERISA, to occur; fail to comply with the Federal Fair Labor Standards Act or violate any other law or regulation, if the violation could reasonably be expected to have a Material Adverse Change, or permit any of its Subsidiaries to do so; withdraw or permit any Subsidiary to withdraw from participation in, permit partial or complete termination of, or permit the occurrence of any other event with respect to, any present pension, profit sharing and deferred compensation plan which could reasonably be expected to result in any liability of Borrower or any of its Subsidiaries, including any liability to the Pension Benefit Guaranty Corporation or its successors or any other Governmental Authority.

7.11 Compliance with Anti-Terrorism Laws. Collateral Agent hereby notifies Borrower and each of its Subsidiaries that pursuant to the requirements of Anti-Terrorism Laws, and Collateral Agent's policies and practices, Collateral Agent is required to obtain, verify and record certain information and documentation that identifies Borrower and each of its Subsidiaries and their principals, which information includes the name and address of Borrower and each of its Subsidiaries and their principals and such other information that will allow Collateral Agent to identify such party in accordance with Anti-Terrorism Laws. Neither Borrower nor any of its Subsidiaries shall, nor shall Borrower or any of its Subsidiaries permit any Affiliate to, directly or indirectly, knowingly enter into any documents, instruments, agreements or contracts with any Person listed on the OFAC Lists. Borrower and each of its Subsidiaries shall immediately notify Collateral Agent if Borrower or such

Subsidiary has knowledge that Borrower, or any Subsidiary or Affiliate of Borrower, is listed on the OFAC Lists or (a) is convicted on, (b) pleads *nolo contendere* to, (c) is indicted on, or (d) is arraigned and held over on charges involving money laundering or predicate crimes to money laundering. Neither Borrower nor any of its Subsidiaries shall, nor shall Borrower or any of its Subsidiaries, permit any Affiliate to, directly or indirectly, (i) conduct any business or engage in any transaction or dealing with any Blocked Person, including, without limitation, the making or receiving of any contribution of funds, goods or services to or for the benefit of any Blocked Person, (ii) deal in, or otherwise engage in any transaction relating to, any property or interests in property blocked pursuant to Executive Order No. 13224 or any similar executive order or other Anti-Terrorism Law, or (iii) engage in or conspire to engage in any transaction that evades or avoids, or has the purpose of evading or avoiding, or attempts to violate, any of the prohibitions set forth in Executive Order No. 13224 or other Anti-Terrorism Law.

8. EVENTS OF DEFAULT

Any one of the following shall constitute an event of default (an "**Event of Default**") under this Agreement:

8.1 Payment Default. Borrower fails to (a) make any payment of principal or interest on any Credit Extension on its due date, or (b) pay any other Obligations within three (3) Business Days after such Obligations are due and payable (which three (3) Business Day grace period shall not apply to payments due on the Maturity Date or the date of acceleration pursuant to Section 9.1 (a) hereof). During the cure period, the failure to cure the payment default is not an Event of Default (but no Credit Extension will be made during the cure period);

8.2 Covenant Default.

(a) Borrower or any of its Subsidiaries fails or neglects to perform any obligation in Sections 6.2 (Financial Statements, Reports, Certificates), 6.4 (Taxes), 6.5 (Insurance), 6.6 (Operating Accounts), 6.7 (Protection of Intellectual Property Rights), 6.9 (Notice of Litigation and Default), 6.11 (Landlord Waivers; Bailee Waivers), 6.12 (Creation/Acquisition of Subsidiaries) or 6.13 (Further Assurances) or Borrower violates any covenant in Section 7; or

(b) Borrower, or any of its Subsidiaries, fails or neglects to perform, keep, or observe any other term, provision, condition, covenant or agreement contained in this Agreement or any Loan Documents, and as to any default (other than those specified in this Section 8) under such other term, provision, condition, covenant or agreement that can be cured, has failed to cure the default within ten (10) days after the occurrence thereof; provided, however, that if the default cannot by its nature be cured within the ten (10) day period or cannot after diligent attempts by Borrower be cured within such ten (10) day period, and such default is likely to be cured within a reasonable time, then Borrower shall have an additional period (which shall not in any case exceed thirty (30) days) to attempt to cure such default, and within such reasonable time period the failure to cure the default shall not be deemed an Event of Default (but no Credit Extensions shall be made during such cure period). Grace periods provided under this Section shall not apply, among other things, to financial covenants or any other covenants set forth in subsection (a) above;

8.3 Material Adverse Change. A Material Adverse Change occurs;

8.4 Attachment; Levy; Restraint on Business.

(a) i) The service of process seeking to attach, by trustee or similar process, any funds of Borrower or any of its Subsidiaries or of any entity under control of Borrower or its Subsidiaries on deposit with any Lender or any Lender's Affiliate or any bank or other institution at which Borrower or any of its Subsidiaries maintains a Collateral Account, or (ii) a notice of lien, levy, or assessment is filed against Borrower or any of its Subsidiaries or their respective assets by any government agency, and the same under subclauses (i) and (ii) hereof are not, within ten (10) days after the occurrence thereof, discharged or stayed (whether through the posting of a bond or otherwise); provided, however, no Credit Extensions shall be made during any ten (10) day cure period; and

(b) (i) any material portion of Borrower's or any of its Subsidiaries' assets is attached, seized, levied on, or comes into possession of a trustee or receiver, or (ii) any court order enjoins, restrains, or prevents Borrower or any of its Subsidiaries from conducting any part of its business;

8.5 Insolvency. (a) Borrower or, Borrower and its Subsidiaries on a consolidated basis, is or becomes Insolvent; (b) Borrower or any of its Subsidiaries begins an Insolvency Proceeding; or (c) an Insolvency Proceeding is begun against Borrower or any of its Subsidiaries and not dismissed or stayed within forty-five (45) days (but no Credit Extensions shall be made while Borrower or any Subsidiary is Insolvent and/or until any Insolvency Proceeding is dismissed);

8.6 Other Agreements. There is a default in any agreement to which Borrower or any of its Subsidiaries is a party with a third party or parties resulting in a right by such third party or parties, whether or not exercised, to accelerate the maturity of any Indebtedness in an amount in excess of Two Hundred Fifty Thousand Dollars ($250,000.00) or that could reasonably be expected to have a Material Adverse Change; provided, however, that the Event of Default under this Section 8.6 caused by the occurrence of a breach or default under such other agreement shall be cured or waived for purposes of this Agreement upon Collateral Agent receiving written notice from the party asserting such breach or default of such cure or waiver of the breach or default under such other agreement, if at the time of such cure or waiver under such other agreement (x) Collateral Agent or any Lender has not declared an Event of Default under this Agreement and/or exercised any rights with respect thereto; (y) any such cure or waiver does not result in an Event of Default under any other provision of this Agreement or any Loan Document; and (z) in connection with any such cure or waiver under such other agreement, the terms of any agreement with such third party are not modified or amended in any manner which could in the good faith business judgment of Collateral Agent be materially less advantageous to Borrower;

8.7 Judgments. One or more judgments, orders, or decrees for the payment of money in an amount, individually or in the aggregate, of at least Two Hundred Fifty Thousand Dollars ($250,000.00) (not covered by independent third-party insurance as to which liability has been accepted by such insurance carrier) shall be rendered against Borrower or any of its Subsidiaries and shall remain unsatisfied, unvacated, or unstayed for a period of ten (10) days after the entry thereof (provided that no Credit Extensions will be made prior to the satisfaction, vacation, or stay of such judgment, order or decree);

8.8 Misrepresentations. Borrower or any of its Subsidiaries or any Person acting for Borrower or any of its Subsidiaries makes any representation, warranty, or other statement now or later in this Agreement, any Loan Document or in any writing delivered to Collateral Agent and/or Lenders or to induce Collateral Agent and/or the Lenders to enter this Agreement or any Loan Document, and such representation, warranty, or other statement is incorrect in any material respect when made;

8.9 Subordinated Debt. A default or breach occurs under any agreement between Borrower or any of its Subsidiaries and any creditor of Borrower or any of its Subsidiaries that signed a subordination, intercreditor, or other similar agreement with Collateral Agent or the Lenders, or any creditor that has signed such an agreement with Collateral Agent or the Lenders breaches any terms of such agreement;

8.10 Guaranty. (a) Any Guaranty terminates or ceases for any reason to be in full force and effect; (b) any Guarantor does not perform any obligation or covenant under any Guaranty; (c) any circumstance described in Sections 8.3, 8.4, 8.5, 8.7, or 8.8 occurs with respect to any Guarantor, or (d) the death of a Guarantor who is a natural person, or the liquidation, winding up, or termination of existence of any Guarantor that is an entity;

8.11 Governmental Approvals. Any Governmental Approval issued shall have been revoked, rescinded, suspended, modified in an adverse manner, or not renewed in the ordinary course for a full term *and* such revocation, rescission, suspension, modification or non-renewal has resulted in or could reasonably be expected to result in a Material Adverse Change; or

8.12 Lien Priority. Any Lien created hereunder or by any other Loan Document shall at any time fail to constitute a valid and perfected Lien on any of the Collateral purported to be secured thereby, subject to no prior or equal Lien, other than Permitted Liens which are permitted to have priority in accordance with the terms of this Agreement.

9. RIGHTS AND REMEDIES

9.1 Rights and Remedies.

(a) Upon the occurrence and during the continuance of an Event of Default, Collateral Agent may, and at the written direction of Required Lenders shall, without notice or demand, do any or all of the following: (i) deliver notice of the Event of Default to Borrower, (ii) by notice to Borrower declare all Obligations immediately due and payable (but if an Event of Default described in Section 8.5 occurs all Obligations shall be immediately due and payable without any action by Collateral Agent or the Lenders) or (iii) by notice to Borrower suspend or terminate the obligations, if any, of the Lenders to advance money or extend credit for Borrower's benefit under this Agreement or under any other agreement between Borrower and Collateral Agent and/or the Lenders (but if an Event of Default described in Section 8.5 occurs all obligations, if any, of the Lenders to advance money or extend credit for Borrower's benefit under this Agreement or under any other agreement between Borrower and Collateral Agent and/or the Lenders shall be immediately terminated without any action by Collateral Agent or the Lenders).

(b) Without limiting the rights of Collateral Agent and the Lenders set forth in Section 9.1(a) above, upon the occurrence and during the continuance of an Event of Default, Collateral Agent shall have the right**,** without notice or demand, to do any or all of the following:

(i) foreclose upon and/or sell or otherwise liquidate, the Collateral;

(ii) apply to the Obligations any (a) balances and deposits of Borrower that Collateral Agent or any Lender holds or controls, or (b) any amount held or controlled by Collateral Agent or any Lender owing to or for the credit or the account of Borrower; and/or

(iii) commence and prosecute an Insolvency Proceeding or consent to Borrower commencing any Insolvency Proceeding.

(c) Without limiting the rights of Collateral Agent and the Lenders set forth in Sections 9.1(a) and (b) above, upon the occurrence and during the continuance of an Event of Default, Collateral Agent shall have the right, without notice or demand, to do any or all of the following:

(i) settle or adjust disputes and claims directly with Account Debtors for amounts on terms and in any order that Collateral Agent considers advisable, notify any Person owing Borrower money of Collateral Agent's security interest in such funds, and verify the amount of such account;

(ii) make any payments and do any acts it considers necessary or reasonable to protect the Collateral and/or its security interest in the Collateral. Borrower shall assemble the Collateral if Collateral Agent requests and make it available in a location as Collateral Agent reasonably designates. Collateral Agent may enter premises where the Collateral is located, take and maintain possession of any part of the Collateral, and pay, purchase, contest, or compromise any Lien which appears to be prior or superior to its security interest and pay all expenses incurred. Borrower grants Collateral Agent a license to enter and occupy any of its premises, without charge, to exercise any of Collateral Agent's rights or remedies;

(iii) ship, reclaim, recover, store, finish, maintain, repair, prepare for sale, and/or advertise for sale, the Collateral. Collateral Agent is hereby granted a non-exclusive, royalty-free license or other right to use, without charge, Borrower's and each of its Subsidiaries' labels, patents, copyrights, mask works, rights of use of any name, trade secrets, trade names, trademarks, service marks, and advertising matter, or any similar property as it pertains to the Collateral, in completing production of, advertising for sale, and selling any Collateral and, in connection with Collateral Agent's exercise of its rights under this Section 9.1, Borrower's and each of its Subsidiaries' rights under all licenses and all franchise agreements inure to Collateral Agent, for the benefit of the Lenders;

(iv) place a "hold" on any account maintained with Collateral Agent or the Lenders and/or deliver a notice of exclusive control, any entitlement order, or other directions or instructions pursuant to any Control Agreement or similar agreements providing control of any Collateral;

(v) demand and receive possession of Borrower's Books;

(vi) appoint a receiver to seize, manage and realize any of the Collateral, and such receiver shall have any right and authority as any competent court will grant or authorize in accordance with any applicable law, including any power or authority to manage the business of Borrower or any of its Subsidiaries; and

(vii) subject to clauses 9.1(a) and (b), exercise all rights and remedies available to Collateral Agent and each Lender under the Loan Documents or at law or equity, including all remedies provided under the Code (including disposal of the Collateral pursuant to the terms thereof).

Notwithstanding any provision of this Section 9.1 to the contrary, upon the occurrence of any Event of Default, Collateral Agent shall have the right to exercise any and all remedies referenced in this Section 9.1 without the written consent of Required Lenders following the occurrence of an Exigent Circumstance. As used in the immediately preceding sentence, "**Exigent Circumstance**" means any event or circumstance that, in the reasonable judgment of Collateral Agent, imminently threatens the ability of Collateral Agent to realize upon all or any material portion of the Collateral, such as, without limitation, fraudulent removal, concealment, or abscondment thereof, destruction or material waste thereof, or failure of Borrower or any of its Subsidiaries after reasonable demand to maintain or reinstate adequate casualty insurance coverage, or which, in the judgment of Collateral Agent, could reasonably be expected to result in a material diminution in value of the Collateral.

9.2 Power of Attorney. Borrower hereby irrevocably appoints Collateral Agent as its lawful attorney-in-fact, exercisable upon the occurrence and during the continuance of an Event of Default, to: (a) endorse Borrower's or any of its Subsidiaries' name on any checks or other forms of payment or security; (b) sign Borrower's or any of its Subsidiaries' name on any invoice or bill of lading for any Account or drafts against Account Debtors; (c) settle and adjust disputes and claims about the Accounts directly with Account Debtors, for amounts and on terms Collateral Agent determines reasonable; (d) make, settle, and adjust all claims under Borrower's insurance policies; (e) pay, contest or settle any Lien, charge, encumbrance, security interest, and adverse claim in or to the Collateral, or any judgment based thereon, or otherwise take any action to terminate or discharge the same; and (f) transfer the Collateral into the name of Collateral Agent or a third party as the Code or any applicable law permits. Borrower hereby appoints Collateral Agent as its lawful attorney-in-fact to sign Borrower's or any of its Subsidiaries' name on any documents necessary to perfect or continue the perfection of Collateral Agent's security interest in the Collateral regardless of whether an Event of Default has occurred until all Obligations (other than inchoate indemnity obligations) have been satisfied in full and Collateral Agent and the Lenders are under no further obligation to make Credit Extensions hereunder. Collateral Agent's foregoing appointment as Borrower's or any of its Subsidiaries' attorney in fact, and all of Collateral Agent's rights and powers, coupled with an interest, are irrevocable until all Obligations (other than inchoate indemnity obligations) have been fully repaid and performed and Collateral Agent's and the Lenders' obligation to provide Credit Extensions terminates.

9.3 Protective Payments. If Borrower or any of its Subsidiaries fail to obtain the insurance called for by Section 6.5 or fails to pay any premium thereon or fails to pay any other amount which Borrower or any of its Subsidiaries is obligated to pay under this Agreement or any other Loan Document, Collateral Agent may obtain such insurance or make such payment, and all amounts so paid by Collateral Agent are Lenders' Expenses and immediately due and payable, bearing interest at the Default Rate, and secured by the Collateral. Collateral Agent will make reasonable efforts to provide Borrower with notice of Collateral Agent obtaining such insurance or making such payment at the time it is obtained or paid or within a reasonable time thereafter. No such payments by Collateral Agent are deemed an agreement to make similar payments in the future or Collateral Agent's waiver of any Event of Default.

9.4 Application of Payments and Proceeds. Notwithstanding anything to the contrary contained in this Agreement, upon the occurrence and during the continuance of an Event of Default, (a) Borrower irrevocably waives the right to direct the application of any and all payments at any time or times thereafter received by

Collateral Agent from or on behalf of Borrower or any of its Subsidiaries of all or any part of the Obligations, and, as between Borrower on the one hand and Collateral Agent and Lenders on the other, Collateral Agent shall have the continuing and exclusive right to apply and to reapply any and all payments received against the Obligations in such manner as Collateral Agent may deem advisable notwithstanding any previous application by Collateral Agent, and (b) the proceeds of any sale of, or other realization upon all or any part of the Collateral shall be applied: first, to the Lenders' Expenses; second, to accrued and unpaid interest on the Obligations (including any interest which, but for the provisions of the United States Bankruptcy Code, would have accrued on such amounts); third, to the principal amount of the Obligations outstanding; and fourth, to any other indebtedness or obligations of Borrower owing to Collateral Agent or any Lender under the Loan Documents. Any balance remaining shall be delivered to Borrower or to whoever may be lawfully entitled to receive such balance or as a court of competent jurisdiction may direct. In carrying out the foregoing, (x) amounts received shall be applied in the numerical order provided until exhausted prior to the application to the next succeeding category, and (y) each of the Persons entitled to receive a payment in any particular category shall receive an amount equal to its pro rata share of amounts available to be applied pursuant thereto for such category. Any reference in this Agreement to an allocation between or sharing by the Lenders of any right, interest or obligation "ratably," "proportionally" or in similar terms shall refer to Pro Rata Share unless expressly provided otherwise. Collateral Agent, or if applicable, each Lender, shall promptly remit to the other Lenders such sums as may be necessary to ensure the ratable repayment of each Lender's portion of any Term Loan and the ratable distribution of interest, fees and reimbursements paid or made by Borrower. Notwithstanding the foregoing, a Lender receiving a scheduled payment shall not be responsible for determining whether the other Lenders also received their scheduled payment on such date; provided, however, if it is later determined that a Lender received more than its ratable share of scheduled payments made on any date or dates, then such Lender shall remit to Collateral Agent or other Lenders such sums as may be necessary to ensure the ratable payment of such scheduled payments, as instructed by Collateral Agent. If any payment or distribution of any kind or character, whether in cash, properties or securities, shall be received by a Lender in excess of its ratable share, then the portion of such payment or distribution in excess of such Lender's ratable share shall be received by such Lender in trust for and shall be promptly paid over to the other Lender for application to the payments of amounts due on the other Lenders' claims. To the extent any payment for the account of Borrower is required to be returned as a voidable transfer or otherwise, the Lenders shall contribute to one another as is necessary to ensure that such return of payment is on a pro rata basis. If any Lender shall obtain possession of any Collateral, it shall hold such Collateral for itself and as agent and bailee for Collateral Agent and other Lenders for purposes of perfecting Collateral Agent's security interest therein.

9.5 Liability for Collateral. So long as Collateral Agent and the Lenders comply with reasonable banking practices regarding the safekeeping of the Collateral in the possession or under the control of Collateral Agent and the Lenders, Collateral Agent and the Lenders shall not be liable or responsible for: (a) the safekeeping of the Collateral; (b) any loss or damage to the Collateral; (c) any diminution in the value of the Collateral; or (d) any act or default of any carrier, warehouseman, bailee, or other Person. Borrower bears all risk of loss, damage or destruction of the Collateral.

9.6 No Waiver; Remedies Cumulative. Failure by Collateral Agent or any Lender, at any time or times, to require strict performance by Borrower of any provision of this Agreement or any other Loan Document shall not waive, affect, or diminish any right of Collateral Agent or any Lender thereafter to demand strict performance and compliance herewith or therewith. No waiver hereunder shall be effective unless signed by Collateral Agent and the Required Lenders and then is only effective for the specific instance and purpose for which it is given. The rights and remedies of Collateral Agent and the Lenders under this Agreement and the other Loan Documents are cumulative. Collateral Agent and the Lenders have all rights and remedies provided under the Code, any applicable law, by law, or in equity. The exercise by Collateral Agent or any Lender of one right or remedy is not an election, and Collateral Agent's or any Lender's waiver of any Event of Default is not a continuing waiver. Collateral Agent's or any Lender's delay in exercising any remedy is not a waiver, election, or acquiescence.

9.7 Demand Waiver. Borrower waives, to the fullest extent permitted by law, demand, notice of default or dishonor, notice of payment and nonpayment, notice of any default, nonpayment at maturity, release, compromise, settlement, extension, or renewal of accounts, documents, instruments, chattel paper, and guarantees held by Collateral Agent or any Lender on which Borrower or any Subsidiary is liable.

10. NOTICES

All notices, consents, requests, approvals, demands, or other communication (collectively, "**Communication**") by any party to this Agreement or any other Loan Document must be in writing and shall be deemed to have been validly served, given, or delivered: (a) upon the earlier of actual receipt and three (3) Business Days after deposit in the U.S. mail, first class, registered or certified mail return receipt requested, with proper postage prepaid; (b) upon transmission, when sent by facsimile transmission; (c) one (1) Business Day after deposit with a reputable overnight courier with all charges prepaid; or (d) when delivered, if hand-delivered by messenger, all of which shall be addressed to the party to be notified and sent to the address, facsimile number, or email address indicated below. Any of Collateral Agent, Lender or Borrower may change its mailing address or facsimile number by giving the other party written notice thereof in accordance with the terms of this Section 10.

If to Borrower:	POSEIDA THERAPEUTICS, INC. VINDICO NANOBIOTECHNOLOGY LLC POSEIDA THERAPEUTICS CYM 4242 Campus Point Court Suite 700 San Diego, California 92121 Attn: Johanna Mylet Fax: (619) 780-2667 Email: jmylet@poseida.com
with a copy (which shall not constitute notice) to:	Cooley LLP Reston Town Center 11951 Freedom Drive 14th Floor Reston, Virginia 20190 Attn: Kenneth Krisko Fax: (703) 456-8100 Email:kkrisko@cooley.com
If to Collateral Agent:	OXFORD FINANCE LLC 133 North Fairfax Street Alexandria, Virginia 22314 Attention: Legal Department Fax: (703) 519-5225 Email: LegalDepartment@oxfordfinance.com
with a copy (which shall not constitute notice) to:	Greenberg Traurig, LLP One International Place Boston, MA 02110 Attn: Jonathan Bell Fax: (617) 310-6001 Email: bellj@gtlaw.com

11. CHOICE OF LAW, VENUE AND JURY TRIAL WAIVER, AND JUDICIAL REFERENCE

California law governs the Loan Documents without regard to principles of conflicts of law. Borrower, Collateral Agent and each Lender each submit to the exclusive jurisdiction of the State and Federal courts in Santa Clara County, California; provided, however, that nothing in this Agreement shall be deemed to operate to preclude Collateral Agent or any Lender from bringing suit or taking other legal action in any other jurisdiction to realize on the Collateral or any other security for the Obligations, or to enforce a judgment or other court order in favor of Collateral Agent or any Lender. Borrower expressly submits and consents in advance to such jurisdiction in any

action or suit commenced in any such court, and Borrower hereby waives any objection that it may have based upon lack of personal jurisdiction, improper venue, or forum non conveniens and hereby consents to the granting of such legal or equitable relief as is deemed appropriate by such court. Borrower hereby waives personal service of the summons, complaints, and other process issued in such action or suit and agrees that service of such summons, complaints, and other process may be made by registered or certified mail addressed to Borrower at the address set forth in, or subsequently provided by Borrower in accordance with, Section 10 of this Agreement and that service so made shall be deemed completed upon the earlier to occur of Borrower's actual receipt thereof or three (3) days after deposit in the U.S. mails, proper postage prepaid.

TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, BORROWER, COLLATERAL AGENT AND EACH LENDER EACH WAIVE THEIR RIGHT TO A JURY TRIAL OF ANY CLAIM OR CAUSE OF ACTION ARISING OUT OF OR BASED UPON THIS AGREEMENT, THE LOAN DOCUMENTS OR ANY CONTEMPLATED TRANSACTION, INCLUDING CONTRACT, TORT, BREACH OF DUTY AND ALL OTHER CLAIMS. THIS WAIVER IS A MATERIAL INDUCEMENT FOR EACH PARTY TO ENTER INTO THIS AGREEMENT. EACH PARTY HAS REVIEWED THIS WAIVER WITH ITS COUNSEL.

WITHOUT INTENDING IN ANY WAY TO LIMIT THE PARTIES' AGREEMENT TO WAIVE THEIR RESPECTIVE RIGHT TO A TRIAL BY JURY, if the above waiver of the right to a trial by jury is not enforceable, the parties hereto agree that any and all disputes or controversies of any nature between them arising at any time shall be decided by a reference to a private judge, mutually selected by the parties (or, if they cannot agree, by the Presiding Judge of the Santa Clara County, California Superior Court) appointed in accordance with California Code of Civil Procedure Section 638 (or pursuant to comparable provisions of federal law if the dispute falls within the exclusive jurisdiction of the federal courts), sitting without a jury, in Santa Clara County, California; and the parties hereby submit to the jurisdiction of such court. The reference proceedings shall be conducted pursuant to and in accordance with the provisions of California Code of Civil Procedure §§ 638 through 645.1, inclusive. The private judge shall have the power, among others, to grant provisional relief, including without limitation, entering temporary restraining orders, issuing preliminary and permanent injunctions and appointing receivers. All such proceedings shall be closed to the public and confidential and all records relating thereto shall be permanently sealed. If during the course of any dispute, a party desires to seek provisional relief, but a judge has not been appointed at that point pursuant to the judicial reference procedures, then such party may apply to the Santa Clara County, California Superior Court for such relief. The proceeding before the private judge shall be conducted in the same manner as it would be before a court under the rules of evidence applicable to judicial proceedings. The parties shall be entitled to discovery which shall be conducted in the same manner as it would be before a court under the rules of discovery applicable to judicial proceedings. The private judge shall oversee discovery and may enforce all discovery rules and orders applicable to judicial proceedings in the same manner as a trial court judge. The parties agree that the selected or appointed private judge shall have the power to decide all issues in the action or proceeding, whether of fact or of law, and shall report a statement of decision thereon pursuant to California Code of Civil Procedure § 644(a). Nothing in this paragraph shall limit the right of any party at any time to exercise self-help remedies, foreclose against collateral, or obtain provisional remedies. The private judge shall also determine all issues relating to the applicability, interpretation, and enforceability of this paragraph.

12. GENERAL PROVISIONS

12.1 Successors and Assigns. This Agreement binds and is for the benefit of the successors and permitted assigns of each party. Borrower may not transfer, pledge or assign this Agreement or any rights or obligations under it without Collateral Agent's and each Lender's prior written consent (which may be granted or withheld in Collateral Agent's and each Lender's discretion, subject to Section 12.6). The Lenders have the right, without the consent of or notice to Borrower, to sell, transfer, assign, pledge, negotiate, or grant participation in **(any** such sale, transfer, assignment, negotiation**,** or grant of a participation, a **"Lender Transfer")** all or any part of, or any interest in, the Lenders' obligations, rights, and benefits under this Agreement and the other Loan Documents; *provided*, *however*, that any such Lender Transfer (other than a transfer, pledge, sale or assignment to an Eligible Assignee) of its obligations, rights, and benefits under this Agreement and the other Loan Documents shall require the prior written consent of the Required Lenders (such approved assignee, an "**Approved Lender**")**.** Borrower and Collateral Agent shall be entitled to continue to deal solely and directly with such Lender in connection with the interests so assigned until Collateral Agent shall have received and accepted an effective assignment agreement in

form satisfactory to Collateral Agent executed, delivered and fully completed by the applicable parties thereto, and shall have received such other information regarding such Eligible Assignee or Approved Lender as Collateral Agent reasonably shall require. Notwithstanding anything to the contrary contained herein, so long as no Event of Default has occurred and is continuing, no Lender Transfer (other than a Lender Transfer (i) in respect of the Warrants or (ii) in connection with (x) assignments by a Lender due to a forced divestiture at the request of any regulatory agency; or (y) upon the occurrence of a default, event of default or similar occurrence with respect to a Lender's own financing or securitization transactions) shall be permitted, without Borrower's consent, to any Person which is an Affiliate or Subsidiary of Borrower, a direct competitor of Borrower or a vulture hedge fund, each as determined by Collateral Agent.

12.2 Indemnification. Borrower agrees to indemnify, defend and hold Collateral Agent and the Lenders and their respective directors, officers, employees, agents, attorneys, or any other Person affiliated with or representing Collateral Agent or the Lenders (each, an "**Indemnified Person**") harmless against: (a) all obligations, demands, claims, and liabilities (collectively, "**Claims**") asserted by any other party in connection with; related to; following; or arising from, out of or under, the transactions contemplated by the Loan Documents; and (b) all losses or Lenders' Expenses incurred, or paid by Indemnified Person in connection with; related to; following; or arising from, out of or under, the transactions contemplated by the Loan Documents between Collateral Agent, and/or the Lenders and Borrower (including reasonable attorneys' fees and expenses), except for Claims and/or losses directly caused by such Indemnified Person's gross negligence or willful misconduct. Borrower hereby further indemnifies, defends and holds each Indemnified Person harmless from and against any and all liabilities, obligations, losses, damages, penalties, actions, judgments, suits, claims, costs, expenses and disbursements of any kind or nature whatsoever (including the fees and disbursements of counsel for such Indemnified Person) in connection with any investigative, response, remedial, administrative or judicial matter or proceeding, whether or not such Indemnified Person shall be designated a party thereto and including any such proceeding initiated by or on behalf of Borrower, and the reasonable expenses of investigation by engineers, environmental consultants and similar technical personnel and any commission, fee or compensation claimed by any broker (other than any broker retained by Collateral Agent or Lenders) asserting any right to payment for the transactions contemplated hereby which may be imposed on, incurred by or asserted against such Indemnified Person as a result of or in connection with the transactions contemplated hereby and the use or intended use of the proceeds of the loan proceeds except for liabilities, obligations, losses, damages, penalties, actions, judgments, suits, claims, costs, expenses and disbursements directly caused by such Indemnified Person's gross negligence or willful misconduct.

12.3 Time of Essence. Time is of the essence for the performance of all Obligations in this Agreement.

12.4 Severability of Provisions. Each provision of this Agreement is severable from every other provision in determining the enforceability of any provision.

12.5 Correction of Loan Documents. Collateral Agent and the Lenders may correct patent errors and fill in any blanks in this Agreement and the other Loan Documents consistent with the agreement of the parties.

12.6 Amendments in Writing; Integration. (a) No amendment, modification, termination or waiver of any provision of this Agreement or any other Loan Document, no approval or consent thereunder, or any consent to any departure by Borrower or any of its Subsidiaries therefrom, shall in any event be effective unless the same shall be in writing and signed by Borrower, Collateral Agent and the Required Lenders provided that:

(i) no such amendment, waiver or other modification that would have the effect of increasing or reducing a Lender's Term Loan Commitment or Commitment Percentage shall be effective as to such Lender without such Lender's written consent;

(ii) no such amendment, waiver or modification that would affect the rights and duties of Collateral Agent shall be effective without Collateral Agent's written consent or signature;

(iii) no such amendment, waiver or other modification shall, unless signed by all the Lenders directly affected thereby, (A) reduce the principal of, rate of interest on or any fees with respect to any Term Loan or forgive any principal, interest (other than default interest) or fees (other than late charges) with respect

to any Term Loan (B) postpone the date fixed for, or waive, any payment of principal of any Term Loan or of interest on any Term Loan (other than default interest) or any fees provided for hereunder (other than late charges or for any termination of any commitment); (C) change the definition of the term "**Required Lenders**" or the percentage of Lenders which shall be required for the Lenders to take any action hereunder; (D) release all or substantially all of any material portion of the Collateral, authorize Borrower to sell or otherwise dispose of all or substantially all or any material portion of the Collateral or release any Guarantor of all or any portion of the Obligations or its guaranty obligations with respect thereto, except, in each case with respect to this clause (D), as otherwise may be expressly permitted under this Agreement or the other Loan Documents (including in connection with any disposition permitted hereunder); (E) amend, waive or otherwise modify this Section 12.6 or the definitions of the terms used in this Section 12.6 insofar as the definitions affect the substance of this Section 12.6; (F) consent to the assignment, delegation or other transfer by Borrower of any of its rights and obligations under any Loan Document or release Borrower of its payment obligations under any Loan Document, except, in each case with respect to this clause (F), pursuant to a merger or consolidation permitted pursuant to this Agreement; (G) amend any of the provisions of Section 9.4 or amend any of the definitions of Pro Rata Share, Term Loan Commitment, Commitment Percentage or that provide for the Lenders to receive their Pro Rata Shares of any fees, payments, setoffs or proceeds of Collateral hereunder; (H) subordinate the Liens granted in favor of Collateral Agent securing the Obligations; or (I) amend any of the provisions of Section 12.10. It is hereby understood and agreed that all Lenders shall be deemed directly affected by an amendment, waiver or other modification of the type described in the preceding clauses (C), (D), (E), (F), (G) and (H) of the preceding sentence;

(iv) the provisions of the foregoing clauses (i), (ii) and (iii) are subject to the provisions of any interlender or agency agreement among the Lenders and Collateral Agent pursuant to which any Lender may agree to give its consent in connection with any amendment, waiver or modification of the Loan Documents only in the event of the unanimous agreement of all Lenders.

(b) Other than as expressly provided for in Section 12.6(a)(i)-(iii), Collateral Agent may, if requested by the Required Lenders, from time to time designate covenants in this Agreement less restrictive by notification to a representative of Borrower.

(c) This Agreement and the Loan Documents represent the entire agreement about this subject matter and supersede prior negotiations or agreements. All prior agreements, understandings, representations, warranties, and negotiations between the parties about the subject matter of this Agreement and the Loan Documents merge into this Agreement and the Loan Documents.

12.7 Counterparts. This Agreement may be executed in any number of counterparts and by different parties on separate counterparts, each of which, when executed and delivered, is an original, and all taken together, constitute one Agreement.

12.8 Survival. All covenants, representations and warranties made in this Agreement continue in full force and effect until this Agreement has terminated pursuant to its terms and all Obligations (other than inchoate indemnity obligations and any other obligations which, by their terms, are to survive the termination of this Agreement) have been satisfied. The obligation of Borrower in Section 12.2 to indemnify each Lender and Collateral Agent, as well as the confidentiality provisions in Section 12.9 below, shall survive until the statute of limitations with respect to such claim or cause of action shall have run.

12.9 Confidentiality. In handling any confidential information of Borrower, the Lenders and Collateral Agent shall exercise the same degree of care that it exercises for their own proprietary information, but disclosure of information may be made: (a) subject to the terms and conditions of this Agreement, to the Lenders' and Collateral Agent's Subsidiaries or Affiliates, or in connection with a Lender's own financing or securitization transactions and upon the occurrence of a default, event of default or similar occurrence with respect to such financing or securitization transaction; (b) to prospective transferees (other than those identified in (a) above) or purchasers of any interest in the Credit Extensions (provided, however, the Lenders and Collateral Agent shall, except upon the occurrence and during the continuance of an Event of Default, obtain such prospective transferee's or purchaser's agreement to the terms of this provision or to similar confidentiality terms); (c) as required by law, regulation, subpoena, or other order; (d) to Lenders' or Collateral Agent's regulators or as otherwise required in connection with an examination or audit; (e) as Collateral Agent reasonably considers appropriate in exercising

remedies under the Loan Documents; and (f) to third party service providers of the Lenders and/or Collateral Agent so long as such service providers have executed a confidentiality agreement with the Lenders and Collateral Agent with terms no less restrictive than those contained herein. Confidential information does not include information that either: (i) is in the public domain or in the Lenders' and/or Collateral Agent's possession when disclosed to the Lenders and/or Collateral Agent, or becomes part of the public domain after disclosure to the Lenders and/or Collateral Agent; or (ii) is disclosed to the Lenders and/or Collateral Agent by a third party, if the Lenders and/or Collateral Agent does not know that the third party is prohibited from disclosing the information. Collateral Agent and the Lenders may use confidential information for any purpose, including, without limitation, for the development of client databases, reporting purposes, and market analysis. The provisions of the immediately preceding sentence shall survive the termination of this Agreement. The agreements provided under this Section 12.9 supersede all prior agreements, understanding, representations, warranties, and negotiations between the parties about the subject matter of this Section 12.9.

12.10 Right of Set Off. Borrower hereby grants to Collateral Agent and to each Lender, a lien, security interest and right of set off as security for all Obligations to Collateral Agent and each Lender hereunder, whether now existing or hereafter arising upon and against all deposits, credits, collateral and property, now or hereafter in the possession, custody, safekeeping or control of Collateral Agent or the Lenders or any entity under the control of Collateral Agent or the Lenders (including a Collateral Agent affiliate) or in transit to any of them. At any time after the occurrence and during the continuance of an Event of Default, without demand or notice, Collateral Agent or the Lenders may set off the same or any part thereof and apply the same to any liability or obligation of Borrower even though unmatured and regardless of the adequacy of any other collateral securing the Obligations. ANY AND ALL RIGHTS TO REQUIRE COLLATERAL AGENT TO EXERCISE ITS RIGHTS OR REMEDIES WITH RESPECT TO ANY OTHER COLLATERAL WHICH SECURES THE OBLIGATIONS, PRIOR TO EXERCISING ITS RIGHT OF SETOFF WITH RESPECT TO SUCH DEPOSITS, CREDITS OR OTHER PROPERTY OF BORROWER ARE HEREBY KNOWINGLY, VOLUNTARILY AND IRREVOCABLY WAIVED.

12.11 Cooperation of Borrower. If necessary, Borrower agrees to (i) execute any documents (including new Secured Promissory Notes) reasonably required to effectuate and acknowledge each assignment of a Term Loan Commitment or Loan to an assignee in accordance with Section 12.1, (ii) make Borrower's management available to meet with Collateral Agent and prospective participants and assignees of Term Loan Commitments or Credit Extensions (which meetings shall be conducted no more often than twice every twelve months unless an Event of Default has occurred and is continuing), and (iii) assist Collateral Agent or the Lenders in the preparation of information relating to the financial affairs of Borrower as any prospective participant or assignee of a Term Loan Commitment or Term Loan reasonably may request. Subject to the provisions of Section 12.9, Borrower authorizes each Lender to disclose to any prospective participant or assignee of a Term Loan Commitment, any and all information in such Lender's possession concerning Borrower and its financial affairs which has been delivered to such Lender by or on behalf of Borrower pursuant to this Agreement, or which has been delivered to such Lender by or on behalf of Borrower in connection with such Lender's credit evaluation of Borrower prior to entering into this Agreement.

12.12 Borrower Liability. Either Borrower may, acting singly, request Credit Extensions hereunder. Each Borrower hereby appoints the other as agent for the other for all purposes hereunder, including with respect to requesting Credit Extensions hereunder. Each Borrower hereunder shall be jointly and severally obligated to repay all Credit Extensions made hereunder, regardless of which Borrower actually receives said Credit Extension, as if each Borrower hereunder directly received all Credit Extensions. Each Borrower waives (a) any suretyship defenses available to it under the Code or any other applicable law, including, without limitation, the benefit of California Civil Code Section 2815 permitting revocation as to future transactions and the benefit of California Civil Code Sections 1432, 2809, 2810, 2819, 2839, 2845, 2847, 2848, 2849, 2850, and 2899 and 3433, and (b) any right to require Collateral Agent or any Lender to: (i) proceed against any Borrower or any other person; (ii) proceed against or exhaust any security; or (iii) pursue any other remedy. Collateral Agent and or any Lender may exercise or not exercise any right or remedy it has against any Borrower or any security it holds (including the right to foreclose by judicial or non-judicial sale) without affecting any Borrower's liability. Notwithstanding any other provision of this Agreement or other related document, each Borrower irrevocably waives all rights that it may have at law or in equity (including, without limitation, any law subrogating Borrower to the rights of Collateral Agent and the Lenders under this Agreement) to seek contribution, indemnification or any other form of reimbursement from any other Borrower, or any other Person now or hereafter primarily or secondarily liable for any of the Obligations, for

any payment made by Borrower with respect to the Obligations in connection with this Agreement or otherwise and all rights that it might have to benefit from, or to participate in, any security for the Obligations as a result of any payment made by Borrower with respect to the Obligations in connection with this Agreement or otherwise. Any agreement providing for indemnification, reimbursement or any other arrangement prohibited under this Section shall be null and void. If any payment is made to a Borrower in contravention of this Section, such Borrower shall hold such payment in trust for Collateral Agent and the Lenders and such payment shall be promptly delivered to Collateral Agent for application to the Obligations, whether matured or unmatured.

13. DEFINITIONS

13.1 Definitions. As used in this Agreement, the following terms have the following meanings:

"**Account**" is any "account" as defined in the Code with such additions to such term as may hereafter be made, and includes, without limitation, all accounts receivable and other sums owing to Borrower.

"**Account Debtor**" is any "account debtor" as defined in the Code with such additions to such term as may hereafter be made.

"**Affiliate**" of any Person is a Person that owns or controls directly or indirectly the Person, any Person that controls or is controlled by or is under common control with the Person, and each of that Person's senior executive officers, directors, partners and, for any Person that is a limited liability company, that Person's managers and members.

"**Agreement**" is defined in the preamble hereof.

"**Amortization Date**" is, (i) September 1, 2018, if Term B Loans are not made hereunder, and (ii) March 1, 2019, if Term B Loans are made hereunder.

"**Annual Projections**" is defined in Section 6.2(a).

"**Anti-Terrorism Laws**" are any laws relating to terrorism or money laundering, including Executive Order No. 13224 (effective September 24, 2001), the USA PATRIOT Act, the laws comprising or implementing the Bank Secrecy Act, and the laws administered by OFAC.

"**Approved Fund**" is any (i) investment company, fund, trust, securitization vehicle or conduit that is (or will be) engaged in making, purchasing, holding or otherwise investing in commercial loans and similar extensions of credit in the ordinary course of its business or (ii) any Person (other than a natural person) which temporarily warehouses loans for any Lender or any entity described in the preceding clause (i) and that, with respect to each of the preceding clauses (i) and (ii), is administered or managed by (a) a Lender, (b) an Affiliate of a Lender or (c) a Person (other than a natural person) or an Affiliate of a Person (other than a natural person) that administers or manages a Lender.

"**Approved Lender**" is defined in Section 12.1.

"**Basic Rate**" is, with respect to a Term Loan, the per annum rate of interest (based on a year of three hundred sixty (360) days) equal to the greater of (i) seven and ninety-five hundredths percent (7.95%) and (ii) the sum of (a) the thirty (30) day U.S. LIBOR rate reported in The Wall Street Journal on the last Business Day of the month that immediately precedes the month in which the interest will accrue, plus (b) six and ninety-six hundredths percent (6.96%). Notwithstanding the foregoing, the Basic Rate for the Term Loan for the period from the Effective Date through and including July 31, 2017 shall be eight and eighteen hundredths percent (8.18%).

"**Blocked Person**" is any Person: (a) listed in the annex to, or is otherwise subject to the provisions of, Executive Order No. 13224, (b) a Person owned or controlled by, or acting for or on behalf of, any Person that is listed in the annex to, or is otherwise subject to the provisions of, Executive Order No. 13224, (c) a Person with which any Lender is prohibited from dealing or otherwise engaging in any transaction by any Anti-Terrorism Law,

(d) a Person that commits, threatens or conspires to commit or supports "terrorism" as defined in Executive Order No. 13224, or (e) a Person that is named a "specially designated national" or "blocked person" on the most current list published by OFAC or other similar list.

"**BofA Credit Card Account**" is Borrower's account numbered ******2921 maintained with Bank of America exclusively for the purposes of securitizing the Borrower's Indebtedness described in clause (g) of the definition of Permitted Indebtedness.

"**Borrower**" is defined in the preamble hereof.

"**Borrower's Books**" are Borrower's or any of its Subsidiaries' books and records including ledgers, federal, and state tax returns, records regarding Borrower's or its Subsidiaries' assets or liabilities, the Collateral, business operations or financial condition, and all computer programs or storage or any equipment containing such information.

"**Business Day**" is any day that is not a Saturday, Sunday or a day on which Collateral Agent is closed.

"**Cash Equivalents**" are (a) marketable direct obligations issued or unconditionally guaranteed by the United States or any agency or any State thereof having maturities of not more than one (1) year from the date of acquisition; (b) commercial paper maturing no more than one (1) year after its creation and having the highest rating from either Standard & Poor's Ratings Group or Moody's Investors Service, Inc., and (c) certificates of deposit maturing no more than one (1) year after issue provided that the account in which any such certificate of deposit is maintained is subject to a Control Agreement in favor of Collateral Agent. For the avoidance of doubt, the direct purchase by Borrower or any of its Subsidiaries of any Auction Rate Securities, or purchasing participations in, or entering into any type of swap or other derivative transaction, or otherwise holding or engaging in any ownership interest in any type of Auction Rate Security by Borrower or any of its Subsidiaries shall be conclusively determined by the Lenders as an ineligible Cash Equivalent, and any such transaction shall expressly violate each other provision of this Agreement governing Permitted Investments. Notwithstanding the foregoing, Cash Equivalents does not include and Borrower, and each of its Subsidiaries, are prohibited from purchasing, purchasing participations in, entering into any type of swap or other equivalent derivative transaction, or otherwise holding or engaging in any ownership interest in any type of debt instrument, including, without limitation, any corporate or municipal bonds with a long-term nominal maturity for which the interest rate is reset through a dutch auction and more commonly referred to as an auction rate security (each, an "**Auction Rate Security**").

"**Cayman Debenture**" means the debenture governed by the laws of the Cayman Islands and entered into on or about the date hereof between Cayman Sub and the Collateral Agent.

"**Cayman Share Mortgage**" means the share mortgage governed by the laws of the Cayman Islands and entered into on or about the date hereof between Parent and the Collateral Agent in relation to the shares in Cayman Sub.

"**Claims**" are defined in Section 12.2.

"**Code**" is the Uniform Commercial Code, as the same may, from time to time, be enacted and in effect in the State of California; provided, that, to the extent that the Code is used to define any term herein or in any Loan Document and such term is defined differently in different Articles or Divisions of the Code, the definition of such term contained in Article or Division 9 shall govern; provided further, that in the event that, by reason of mandatory provisions of law, any or all of the attachment, perfection, or priority of, or remedies with respect to, Collateral Agent's Lien on any Collateral is governed by the Uniform Commercial Code in effect in a jurisdiction other than the State of California, the term "Code" shall mean the Uniform Commercial Code as enacted and in effect in such other jurisdiction solely for purposes of the provisions thereof relating to such attachment, perfection, priority, or remedies and for purposes of definitions relating to such provisions.

"**Collateral**" is any and all properties, rights and assets of Borrower described on Exhibit A; provided, however, the Cayman Sub's Collateral shall also include, to the extent not set forth on Exhibit A hereto, all Charged Assets (as such term is defined in the Cayman Debenture).

"**Collateral Account**" is any Deposit Account, Securities Account, or Commodity Account, or any other bank account maintained by Borrower or any Subsidiary at any time.

"**Collateral Agent**" is, Oxford, not in its individual capacity, but solely in its capacity as agent on behalf of and for the benefit of the Lenders.

"**Commitment Percentage**" is set forth in Schedule 1.1, as amended from time to time.

"**Commodity Account**" is any "commodity account" as defined in the Code with such additions to such term as may hereafter be made.

"**Communication**" is defined in Section 10.

"**Compliance Certificate**" is that certain certificate in the form attached hereto as Exhibit C.

"**Contingent Obligation**" is, for any Person, any direct or indirect liability, contingent or not, of that Person for (a) any indebtedness, lease, dividend, letter of credit or other obligation of another such as an obligation directly or indirectly guaranteed, endorsed, co-made, discounted or sold with recourse by that Person, or for which that Person is directly or indirectly liable; (b) any obligations for undrawn letters of credit for the account of that Person; and (c) all obligations from any interest rate, currency or commodity swap agreement, interest rate cap or collar agreement, or other agreement or arrangement designated to protect a Person against fluctuation in interest rates, currency exchange rates or commodity prices; but "Contingent Obligation" does not include endorsements in the ordinary course of business. The amount of a Contingent Obligation is the stated or determined amount of the primary obligation for which the Contingent Obligation is made or, if not determinable, the maximum reasonably anticipated liability for it determined by the Person in good faith; but the amount may not exceed the maximum of the obligations under any guarantee or other support arrangement.

"**Control Agreement**" is any control agreement entered into among the depository institution at which Borrower or any of its Subsidiaries maintains a Deposit Account or the securities intermediary or commodity intermediary at which Borrower or any of its Subsidiaries maintains a Securities Account or a Commodity Account, Borrower and such Subsidiary, and Collateral Agent pursuant to which Collateral Agent obtains control (within the meaning of the Code) for the benefit of the Lenders over such Deposit Account, Securities Account, or Commodity Account.

"**Copyrights**" are any and all copyright rights, copyright applications, copyright registrations and like protections in each work or authorship and derivative work thereof, whether published or unpublished and whether or not the same also constitutes a trade secret.

"**Credit Extension**" is any Term Loan or any other extension of credit by Collateral Agent or Lenders for Borrower's benefit.

"**Default Rate**" is defined in Section 2.3(b).

"**Deposit Account**" is any "deposit account" as defined in the Code with such additions to such term as may hereafter be made.

"**Designated Deposit Account**" is Borrower's deposit account, account number x-5888, maintained with Bank of America.

"**Disbursement Letter**" is that certain form attached hereto as Exhibit B.

"**Dollars**," "**dollars**" and "$" each mean lawful money of the United States.

"**Effective Date**" is defined in the preamble of this Agreement.

"**Eligible Assignee**" is (i) a Lender, (ii) an Affiliate of a Lender, (iii) an Approved Fund and (iv) any commercial bank, savings and loan association or savings bank or any other entity which is an "accredited investor" (as defined in Regulation D under the Securities Act of 1933, as amended) and which extends credit or buys loans as one of its businesses, including insurance companies, mutual funds, lease financing companies and commercial finance companies, in each case, which either (A) has a rating of BBB or higher from Standard & Poor's Rating Group and a rating of Baa2 or higher from Moody's Investors Service, Inc. at the date that it becomes a Lender or (B) has total assets in excess of Five Billion Dollars ($5,000,000,000.00), and in each case of clauses (i) through (iv), which, through its applicable lending office, is capable of lending to Borrower without the imposition of any withholding or similar taxes; provided that notwithstanding the foregoing, "Eligible Assignee" shall not include, unless an Event of Default has occurred and is continuing, (i) Borrower or any of Borrower's Affiliates or Subsidiaries or (ii) a direct competitor of Borrower or a vulture hedge fund, each as determined by Collateral Agent. Notwithstanding the foregoing, (x) in connection with assignments by a Lender due to a forced divestiture at the request of any regulatory agency, the restrictions set forth herein shall not apply and Eligible Assignee shall mean any Person or party and (y) in connection with a Lender's own financing or securitization transactions, the restrictions set forth herein shall not apply and Eligible Assignee shall mean any Person or party providing such financing or formed to undertake such securitization transaction and any transferee of such Person or party upon the occurrence of a default, event of default or similar occurrence with respect to such financing or securitization transaction; provided that no such sale, transfer, pledge or assignment under this clause (y) shall release such Lender from any of its obligations hereunder or substitute any such Person or party for such Lender as a party hereto until Collateral Agent shall have received and accepted an effective assignment agreement from such Person or party in form satisfactory to Collateral Agent executed, delivered and fully completed by the applicable parties thereto, and shall have received such other information regarding such Eligible Assignee as Collateral Agent reasonably shall require.

"**Equipment**" is all "equipment" as defined in the Code with such additions to such term as may hereafter be made, and includes without limitation all machinery, fixtures, goods, vehicles (including motor vehicles and trailers), and any interest in any of the foregoing.

"**ERISA**" is the Employee Retirement Income Security Act of 1974, as amended, and its regulations.

"**Event of Default**" is defined in Section 8.

"**Final Payment**" is a payment (in addition to and not a substitution for the regular monthly payments of principal plus accrued interest) due on the earliest to occur of (a) the Maturity Date, or (b) the acceleration of any Term Loan, or (c) the prepayment of a Term Loan pursuant to Section 2.2(c) or (d), equal to the original principal amount of such Term Loan funded multiplied by the Final Payment Percentage, payable to Lenders in accordance with their respective Pro Rata Shares.

"**Final Payment Percentage**" is eight and fifty hundredths percent (8.50%).

"**Foreign Subsidiary**" is a Subsidiary that is not an entity organized under the laws of the United States or any territory thereof.

"**Funding Date**" is any date on which a Credit Extension is made to or on account of Borrower which shall be a Business Day.

"**GAAP**" is generally accepted accounting principles set forth in the opinions and pronouncements of the Accounting Principles Board of the American Institute of Certified Public Accountants and statements and pronouncements of the Financial Accounting Standards Board or in such other statements by such other Person as may be approved by a significant segment of the accounting profession in the United States, which are applicable to the circumstances as of the date of determination.

"**General Intangibles**" are all "general intangibles" as defined in the Code in effect on the date hereof with such additions to such term as may hereafter be made, and includes without limitation, all copyright rights, copyright applications, copyright registrations and like protections in each work of authorship and derivative work, whether published or unpublished, any patents, trademarks, service marks and, to the extent permitted under applicable law, any applications therefor, whether registered or not, any trade secret rights, including any rights to unpatented inventions, payment intangibles, royalties, contract rights, goodwill, franchise agreements, purchase orders, customer lists, route lists, telephone numbers, domain names, claims, income and other tax refunds, security and other deposits, options to purchase or sell real or personal property, rights in all litigation presently or hereafter pending (whether in contract, tort or otherwise), insurance policies (including without limitation key man, property damage, and business interruption insurance), payments of insurance and rights to payment of any kind.

"**Governmental Approval**" is any consent, authorization, approval, order, license, franchise, permit, certificate, accreditation, registration, filing or notice, of, issued by, from or to, or other act by or in respect of, any Governmental Authority.

"**Governmental Authority**" is any nation or government, any state or other political subdivision thereof, any agency, authority, instrumentality, regulatory body, court, central bank or other entity exercising executive, legislative, judicial, taxing, regulatory or administrative functions of or pertaining to government, any securities exchange and any self-regulatory organization.

"**Guarantor**" is any Person providing a Guaranty in favor of Collateral Agent.

"**Guaranty**" is any guarantee of all or any part of the Obligations, as the same may from time to time be amended, restated, modified or otherwise supplemented.

"**Indebtedness**" is (a) indebtedness for borrowed money or the deferred price of property or services, such as reimbursement and other obligations for surety bonds and letters of credit, (b) obligations evidenced by notes, bonds, debentures or similar instruments, (c) capital lease obligations, and (d) Contingent Obligations.

"**Indemnified Person**" is defined in Section 12.2.

"**Insolvency Proceeding**" is any proceeding by or against any Person under the United States Bankruptcy Code, or any other bankruptcy or insolvency law, including assignments for the benefit of creditors, compositions, extensions generally with its creditors, or proceedings seeking reorganization, arrangement, or other relief.

"**Insolvent**" means not Solvent.

"**Intellectual Property**" means all of Borrower's or any Subsidiary's right, title and interest in and to the following:

(a) its Copyrights, Trademarks and Patents;

(b) any and all trade secrets and trade secret rights, including, without limitation, any rights to unpatented inventions, know-how, operating manuals;

(c) any and all source code;

(d) any and all design rights which may be available to Borrower;

(e) any and all claims for damages by way of past, present and future infringement of any of the foregoing, with the right, but not the obligation, to sue for and collect such damages for said use or infringement of the Intellectual Property rights identified above; and

(f) all amendments, renewals and extensions of any of the Copyrights, Trademarks or Patents.

"**Inventory**" is all "inventory" as defined in the Code in effect on the date hereof with such additions to such term as may hereafter be made, and includes without limitation all merchandise, raw materials, parts, supplies, packing and shipping materials, work in process and finished products, including without limitation such inventory as is temporarily out of any Person's custody or possession or in transit and including any returned goods and any documents of title representing any of the above.

"**Investment**" is any beneficial ownership interest in any Person (including stock, partnership interest or other securities), and any loan, advance, payment or capital contribution to any Person.

"**Key Person**" is each of Borrower's (i) Chief Executive Officer, who is Eric Ostertag as of the Effective Date, and (ii) Chief Operating Officer, who is Nishan de Silva as of the Effective Date.

"**Lender**" is any one of the Lenders.

"**Lenders**" are the Persons identified on Schedule 1.1 hereto and each assignee that becomes a party to this Agreement pursuant to Section 12.1.

"**Lenders' Expenses**" are all audit fees and expenses, costs, and expenses (including reasonable attorneys' fees and expenses, as well as appraisal fees, fees incurred on account of lien searches, inspection fees, and filing fees) for preparing, amending, negotiating, administering, defending and enforcing the Loan Documents (including, without limitation, those incurred in connection with appeals or Insolvency Proceedings) or otherwise incurred by Collateral Agent and/or the Lenders in connection with the Loan Documents.

"**Lien**" is a claim, mortgage, deed of trust, levy, charge, pledge, security interest, or other encumbrance of any kind, whether voluntarily incurred or arising by operation of law or otherwise against any property.

"**Loan Documents**" are, collectively, this Agreement, the Warrants, the Cayman Share Mortgage, the Cayman Debenture, the Post Closing Letter, the Perfection Certificates, each Compliance Certificate, each Disbursement Letter, any subordination agreements, any note, or notes or guaranties executed by Borrower or any other Person, and any other present or future agreement entered into by Borrower, any Guarantor or any other Person for the benefit of the Lenders and Collateral Agent in connection with this Agreement; all as amended, restated, or otherwise modified.

"**Loan Party**" means Borrower and each Subsidiary that becomes a Guarantor.

"**Material Adverse Change**" is (a) a material impairment in the perfection or priority of Collateral Agent's Lien in the Collateral or in the value of such Collateral; (b) a material adverse change in the business, operations or condition (financial or otherwise) of Borrower or Borrower and its Subsidiaries on a consolidated basis; or (c) a material impairment of the prospect of repayment of any portion of the Obligations.

"**Maturity Date**" is, for each Term Loan, August 1, 2021.

"**Obligations**" are all of Borrower's obligations to pay when due any debts, principal, interest, Lenders' Expenses, the Prepayment Fee, the Final Payment, and other amounts Borrower owes the Lenders now or later, in connection with, related to, following, or arising from, out of or under, this Agreement or, the other Loan Documents (other than the Warrants), or otherwise, and including interest accruing after Insolvency Proceedings begin (whether or not allowed) and debts, liabilities, or obligations of Borrower assigned to the Lenders and/or Collateral Agent, and the performance of Borrower's duties under the Loan Documents (other than the Warrants).

"**OFAC**" is the U.S. Department of Treasury Office of Foreign Assets Control.

"**OFAC Lists**" are, collectively, the Specially Designated Nationals and Blocked Persons List maintained by OFAC pursuant to Executive Order No. 13224, 66 Fed. Reg. 49079 (Sept. 25, 2001) and/or any other list of terrorists or other restricted Persons maintained pursuant to any of the rules and regulations of OFAC or pursuant to any other applicable Executive Orders.

"**Operating Documents**" are, for any Person, such Person's formation documents, as certified by the Secretary of State (or equivalent agency) of such Person's jurisdiction of organization (or in the case of the Cayman Sub certified as true copies of the originals by a Cayman Islands attorney at law) on a date that is no earlier than thirty (30) days prior to the Effective Date, and, (a) if such Person is a corporation, its bylaws in current form, (b) if such Person is a limited liability company, its limited liability company agreement (or similar agreement), (c) if such Person is a partnership, its partnership agreement (or similar agreement), each of the foregoing with all current amendments or modifications thereto and (d) if such Person is an exempted company, its certificate of incorporation, statutory registers, and memorandum and articles of association.

"**Patents**" means all patents, patent applications and like protections including without limitation improvements, divisions, continuations, renewals, reissues, extensions and continuations-in-part of the same.

"**Payment Date**" is the first (1st) calendar day of each calendar month, commencing on September 1, 2017.

"**Perfection Certificate**" and "**Perfection Certificates**" is defined in Section 5.1.

"**Permitted Indebtedness**" is:

(a) Borrower's Indebtedness to the Lenders and Collateral Agent under this Agreement and the other Loan Documents;

(b) Indebtedness existing on the Effective Date and disclosed on the Perfection Certificate(s);

(c) Subordinated Debt;

(d) unsecured Indebtedness to trade creditors incurred in the ordinary course of business;

(e) Indebtedness consisting of capitalized lease obligations and purchase money Indebtedness, in each case incurred by Borrower or any of its Subsidiaries to finance the acquisition, repair, improvement or construction of fixed or capital assets of such person, provided that (i) the aggregate outstanding principal amount of all such Indebtedness does not exceed Five Hundred Thousand Dollars ($500,000.00) at any time and (ii) the principal amount of such Indebtedness does not exceed the lower of the cost or fair market value of the property so acquired or built or of such repairs or improvements financed with such Indebtedness (each measured at the time of such acquisition, repair, improvement or construction is made);

(f) Indebtedness incurred as a result of endorsing negotiable instruments received in the ordinary course of Borrower's business;

(g) Indebtedness with respect to corporate credit cards issued Bank of America (for the Borrower or any Subsidiary) in an aggregate amount outstanding at any time not to exceed Three Hundred Thousand Dollars ($300,000.00);

(h) all obligations arising under any interest rate, currency or commodity swap agreement, interest rate cap agreement, interest rate collar agreement, or other agreement or arrangement designated to protect Borrower or a Subsidiary against fluctuation in interest rates, currency exchange rates or commodity prices; provided the aggregate amount of Indebtedness under this clause (h) may not exceed Two Hundred Fifty Thousand Dollars ($250,000.00) at any given time;

(i) Indebtedness in respect of letters of credit, bank guarantees and similar instruments issued for the account of the Borrower or any Subsidiary in the ordinary course of business supporting obligations under (A) workers' compensation, unemployment insurance and other social security laws and (B) bids, trade contracts, leases, statutory obligations, surety and appeal bonds, performance bonds and obligations of a like nature; ; provided the aggregate amount of Indebtedness under this clause (i) may not exceed Two Hundred Fifty Thousand Dollars ($250,000.00) at any given time

(j) Indebtedness constituting or consisting of Investments under clause (f) of the definition of "Permitted Investments" but without duplication;

(k) Other unsecured Indebtedness not to exceed Two Hundred Fifty Thousand Dollars ($250,000.00) in the aggregate at any time; and

(l) extensions, refinancings, modifications, amendments and restatements of any items of Permitted Indebtedness (a) through (k) above, provided that the principal amount thereof is not increased or the terms thereof are not modified to impose materially more burdensome terms upon Borrower, or its Subsidiary, as the case may be.

"**Permitted Investments**" are:

(a) Investments disclosed on the Perfection Certificate(s) and existing on the Effective Date;

(b) (i) Investments consisting of cash and Cash Equivalents, and (ii) any other Investments permitted by Borrower's investment policy, as amended from time to time, provided that such investment policy (and any such amendment thereto) has been approved in writing by Collateral Agent (and Collateral Agent acknowledges the investment policy delivered on or prior to the Effective Date is hereby approved);

(c) Investments consisting of the endorsement of negotiable instruments for deposit or collection or similar transactions in the ordinary course of Borrower;

(d) Investments consisting of deposit, securities and/or commodities accounts in which Collateral Agent has a perfected security interest (and which, in case of the securities and commodities accounts are maintained in accordance with Borrower's Investment Policy);

(e) Investments in connection with Transfers permitted by Section 7.1;

(f) Investments (i) by Borrower or any Subsidiary in Subsidiaries that are not Loan Parties, provide that the aggregate amount of all such Investments does not exceed Two Hundred Fifty Thousand Dollars ($250,000.00) in the aggregate in any fiscal year; and (ii) by Borrower or any Subsidiary in or to any Loan Party;

(g) Investments consisting of (i) travel advances and employee relocation loans and other employee loans and advances in the ordinary course of business, and (ii) loans to employees, officers or directors relating to the purchase of equity securities of Borrower or its Subsidiaries pursuant to employee stock purchase plans or agreements approved by Borrower's Board of Directors; not to exceed Two Hundred Fifty Thousand Dollars ($250,000.00) in the aggregate for (i) and (ii) in any fiscal year;

(h) Investments (including debt obligations) received in connection with the bankruptcy or reorganization of customers or suppliers and in settlement of delinquent obligations of, and other disputes with, customers or suppliers arising in the ordinary course of business;

(i) Investments consisting of notes receivable of, or prepaid royalties and other credit extensions, to customers and suppliers who are not Affiliates, in the ordinary course of business; provided that this paragraph (h) shall not apply to Investments of Borrower in any Subsidiary;

(j) non-cash Investments in joint ventures or strategic alliances in the ordinary course of Borrower's business consisting of the non-exclusive licensing of technology, the development of technology or the providing of technical support

(k) Investments constituting interest rate, currency or commodity swap agreement, interest rate cap agreement, interest rate collar agreement, or other agreement or arrangement designated to protect Borrower or a Subsidiary against fluctuation in interest rates, currency exchange rates or commodity prices; provided, that the

aggregate amount of Investments allowed under this clause (k) shall not exceed Two Hundred Fifty Thousand Dollars ($250,000.00) in any given fiscal year;

(l) Investments in joint ventures or strategic alliances in the ordinary course of Borrower's business, provided that any cash investments by Borrower do not exceed Two Hundred Thousand Dollars ($250,000) in the aggregate in any fiscal year; and

(m) other Investments not otherwise permitted herein provided that the aggregate amount of all such Investments in any year shall not exceed Two Hundred Fifty Thousand Dollars ($250,000.00).

"**Permitted Licenses**" are (A) licenses of over-the-counter software that is commercially available to the public, and (B) non-exclusive and exclusive licenses for the use of the Intellectual Property of Borrower or any of its Subsidiaries entered into in the ordinary course of business, provided, that, with respect to each such license described in clause (B), (i) no Event of Default has occurred or is continuing at the time of such license; (ii) the license constitutes an arms-length transaction, the terms of which, on their face, do not provide for a sale or assignment of any Intellectual Property and do not restrict the ability of Borrower or any of its Subsidiaries, as applicable, to pledge, grant a security interest in or lien on, or assign or otherwise Transfer any Intellectual Property; (iii) in the case of any exclusive license, (x) Borrower delivers ten (10) days' prior written notice and a brief summary of the terms of the proposed license to Collateral Agent and the Lenders and delivers to Collateral Agent and the Lenders copies of the final executed licensing documents in connection with the exclusive license promptly upon consummation thereof, and (y) any such license could not result in a legal transfer of title of the licensed property but may be exclusive in respects other than territory and may be exclusive as to territory only as to discrete geographical areas outside of the United States; and (iv) all upfront payments, royalties, milestone payments or other proceeds arising from the licensing agreement that are payable to Borrower or any of its Subsidiaries are paid to a Deposit Account that is governed by a Control Agreement.

"**Permitted Liens**" are:

(a) Liens existing on the Effective Date and disclosed on the Perfection Certificates or arising under this Agreement and the other Loan Documents;

(b) Liens for taxes, fees, assessments or other government charges or levies, either (i) not due and payable or (ii) being contested in good faith and for which Borrower maintains adequate reserves on its Books, provided that no notice of any such Lien has been filed or recorded under the Internal Revenue Code of 1986, as amended, and the Treasury Regulations adopted thereunder;

(c) Liens securing Indebtedness permitted under clause (e) of the definition of "**Permitted Indebtedness**," provided that (i) such liens exist prior to the acquisition of, or attach substantially simultaneous with, or within ninety (90) days after the, acquisition, lease, repair, improvement or construction of, such property financed or leased by such Indebtedness and (ii) such liens do not extend to any property of Borrower other than the property (and proceeds thereof) acquired, leased or built, or the improvements or repairs, financed by such Indebtedness;

(d) Liens of carriers, warehousemen, suppliers, or other Persons that are possessory in nature arising in the ordinary course of business so long as such Liens attach only to Inventory, securing liabilities in the aggregate amount not to exceed Fifty Thousand Dollars ($50,000.00), and which are not delinquent or remain payable without penalty or which are being contested in good faith and by appropriate proceedings which proceedings have the effect of preventing the forfeiture or sale of the property subject thereto;

(e) Liens to secure payment of workers' compensation, employment insurance, old-age pensions, social security and other like obligations incurred in the ordinary course of business (other than Liens imposed by ERISA);

(f) leases or subleases of real property granted in the ordinary course of Borrower's business (or, if referring to another Person, in the ordinary course of such Person's business), and leases, subleases,

non-exclusive licenses or sublicenses of personal property (other than Intellectual Property) granted in the ordinary course of Borrower's business (or, if referring to another Person, in the ordinary course of such Person's business), if the leases, subleases, licenses and sublicenses do not prohibit granting Collateral Agent or any Lender a security interest therein;

(g) banker's liens, rights of setoff and Liens in favor of financial institutions incurred in the ordinary course of business arising in connection with Borrower's deposit accounts or securities accounts held at such institutions solely to secure payment of fees and similar costs and expenses and provided such accounts are maintained in compliance with Section 6.6(b) hereof;

(h) Liens arising from judgments, decrees or attachments in circumstances not constituting an Event of Default under Section 8.4 or 8.7;

(i) Liens consisting of Permitted Licenses;

(j) easements, reservations, rights-of-way, restrictions, minor defects or irregularities in title and other similar Liens affecting real property not interfering in any material respect with the ordinary course of the business of Borrower;

(k) deposits to secure the performance of bids, trade contracts (other than for borrowed money), contracts for the purchase of property permitted hereunder, statutory obligations, surety and appeal bonds, performance bonds and other obligations of a like nature, in each case, incurred in the ordinary course of business not representing an obligation for borrowed money; provided, however, the aggregate amount of such deposits at any given time may not exceed Two Million Five Hundred Thousand Dollars ($2,500,000.00);

(l) Liens in favor of customs and revenue authorities arising as a matter of law, in the ordinary course of Borrower's business, to secure payment of customs duties in connection with the importation of goods; provided, however, the aggregate amount of Indebtedness secured by such Liens may not exceed Two Hundred Fifty Thousand Dollars ($250,000.00) at any given time;

(m) Liens on the BofA Credit Card Account to secure the Permitted Indebtedness described in clause (g) of the definition of Permitted Indebtedness;

(n) Liens or deposits to secure the performance of leases incurred in the ordinary course of business and not representing an obligation for borrowed money and Liens to secure tenant improvements, provided the lessor thereof has executed a landlord consent in favor of, and in form and content reasonably acceptable to, Collateral Agent; provided, however, the sum of the aggregate amount of the Indebtedness secured by such Liens and the aggregate amount of such deposits at any given time may not exceed Two Hundred Fifty Thousand Dollars ($250,000.00); and

(o) Liens incurred in the extension, renewal or refinancing of the indebtedness secured by Liens described in (a) through (m), but any extension, renewal or replacement Lien must be limited to the property encumbered by the existing Lien.

"**Person**" is any individual, sole proprietorship, partnership, limited liability company, exempted company, joint venture, company, trust, unincorporated organization, association, corporation, institution, public benefit corporation, firm, joint stock company, estate, entity or government agency.

"**Positive Data Event**" is the receipt by Borrower on or before June 30, 2018 of positive data from the Phase 1/2 trials of Borrower's drug candidate P-BCMA for the treatment of multiple myeloma, which data must be in such form and substance as is reasonably acceptable to Collateral Agent.

"**Post Closing Letter**" is that certain Post Closing Letter dated as of the Effective Date by and between Collateral Agent and Borrower.

"**Prepayment Fee**" is, with respect to any Term Loan subject to prepayment prior to the Maturity Date, whether by mandatory or voluntary prepayment, acceleration or otherwise, an additional fee payable to the Lenders in amount equal to:

(i) for a prepayment made on or after the Funding Date of such Term Loan through and including the first anniversary of the Funding Date of such Term Loan, three percent (3.00%) of the principal amount of such Term Loan prepaid;

(ii) for a prepayment made after the date which is after the first anniversary of the Funding Date of such Term Loan through and including the second anniversary of the Funding Date of such Term Loan, two percent (2.00%) of the principal amount of the Term Loans prepaid; and

(iii) for a prepayment made after the date which is after the second anniversary of the Funding Date of such Term Loan and prior to the Maturity Date, one percent (1.00%) of the principal amount of the Term Loans prepaid.

"**Pro Rata Share**" is, as of any date of determination, with respect to each Lender, a percentage (expressed as a decimal, rounded to the ninth decimal place) determined by dividing the outstanding principal amount of Term Loans held by such Lender by the aggregate outstanding principal amount of all Term Loans.

"**Registered Organization**" with respect to the Parent and the US Sub, is any "registered organization" as defined in the Code with such additions to such term as may hereafter be made and with respect to the Cayman Sub.

"**Required Lenders**" means (i) for so long as all of the Persons that are Lenders on the Effective Date (each an "**Original Lender**") have not assigned or transferred any of their interests in their Term Loan, Lenders holding one hundred percent (100%) of the aggregate outstanding principal balance of the Term Loan, or (ii) at any time from and after any Original Lender has assigned or transferred any interest in its Term Loan, Lenders holding at least sixty six percent (66%) of the aggregate outstanding principal balance of the Term Loan and, in respect of this clause (ii), (A) each Original Lender that has not assigned or transferred any portion of its Term Loan, (B) each assignee or transferee of an Original Lender's interest in the Term Loan, but only to the extent that such assignee or transferee is an Affiliate or Approved Fund of such Original Lender, and (C) any Person providing financing to any Person described in clauses (A) and (B) above; provided, however, that this clause (C) shall only apply upon the occurrence of a default, event of default or similar occurrence with respect to such financing.

"**Requirement of Law**" is as to any Person, the organizational or governing documents of such Person, and any law (statutory or common), treaty, rule or regulation or determination of an arbitrator or a court or other Governmental Authority, in each case applicable to or binding upon such Person or any of its property or to which such Person or any of its property is subject.

"**Responsible Officer**" is any of the President, Chief Executive Officer, or Chief Operating Officer of Borrower acting alone, to the extent such Borrower has such officers.

"**Second Draw Period**" is the period commencing on the date of the occurrence of the Positive Data Event and ending on the earliest of (i) the date that is sixty (60) days immediately after the occurrence of the Positive Data Event, (ii) June 30, 2018 and (iii) the occurrence of an Event of Default; provided, however, that the Second Draw Period shall not commence if on the date of the occurrence of the Positive Data Event an Event of Default has occurred and is continuing.

"**Secured Promissory Note**" is defined in Section 2.4.

"**Secured Promissory Note Record**" is a record maintained by each Lender with respect to the outstanding Obligations owed by Borrower to Lender and credits made thereto.

"**Securities Account**" is any "securities account" as defined in the Code with such additions to such term as may hereafter be made.

"**Shares**" is one hundred percent (100%) of the issued and outstanding capital stock, membership units or other securities owned or held of record by Borrower or Borrower's Subsidiary, in any Subsidiary; provided that, in the event Borrower, demonstrates to Collateral Agent's reasonable satisfaction, that a pledge of more than sixty five percent (65%) of the Shares of such Subsidiary which is a Foreign Subsidiary, creates a present and existing adverse tax consequence to Borrower under the U.S. Internal Revenue Code, "Shares" shall mean sixty-five percent (65%) of the issued and outstanding capital stock, membership units or other securities owned or held of record by Borrower or its Subsidiary in such Foreign Subsidiary.

"**Solvent**" is, with respect to any Person: the fair salable value of such Person's consolidated assets (including goodwill minus disposition costs) exceeds the fair value of such Person's liabilities; such Person is not left with unreasonably small capital after the transactions in this Agreement; and such Person is able to pay its debts (including trade debts) as they mature.

"**Subordinated Debt**" is indebtedness incurred by Borrower or any of its Subsidiaries subordinated to all Indebtedness of Borrower and/or its Subsidiaries to the Lenders (pursuant to a subordination, intercreditor, or other similar agreement in form and substance satisfactory to Collateral Agent and the Lenders entered into between Collateral Agent, Borrower, and/or any of its Subsidiaries, and the other creditor), on terms acceptable to Collateral Agent and the Lenders.

"**Subsidiary**" is, with respect to any Person, any Person of which more than fifty percent (50%) of the voting stock or other equity interests (in the case of Persons other than corporations) is owned or controlled, directly or indirectly, by such Person or through one or more intermediaries.

"**Term Loan**" is defined in Section 2.2(a)(ii) hereof.

"**Term A Loan**" is defined in Section 2.2(a)(i) hereof.

"**Term B Loan**" is defined in Section 2.2(a)(ii) hereof.

"**Term Loan Commitment**" is, for any Lender, the obligation of such Lender to make a Term Loan, up to the principal amount shown on Schedule 1.1**.** "**Term Loan Commitments**" means the aggregate amount of such commitments of all Lenders.

"**Trademarks**" means any trademark and servicemark rights, whether registered or not, applications to register and registrations of the same and like protections, and the entire goodwill of the business of Borrower connected with and symbolized by such trademarks.

"**Transfer**" is defined in Section 7.1.

"**Warrants**" are those certain Warrants to Purchase Stock dated as of the Effective Date, or any date thereafter, issued by Borrower in favor of each Lender or such Lender's Affiliates.

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IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the Effective Date.

BORROWER:

POSEIDA THERAPEUTICS, INC.

By /s/ Nishan de Silva
Name: Nishan de Silva
Title: President and Chief Operating Officer

BORROWER:

VINDICO NANOBIOTECHNOLOGY LLC

By /s/ Nishan de Silva
Name: Nishan de Silva
Title: President and Chief Operating Officer

BORROWER:

POSEIDA THERAPEUTICS CYM

By /s/ Nishan de Silva
Name: Nishan de Silva
Title: President and Chief Operating Officer

COLLATERAL AGENT AND LENDER:

OXFORD FINANCE LLC

By /s/ Colette H. Featherly
Name: Colette H. Featherly
Title: Senior Vice President

SCHEDULE 1.1

Lenders and Commitments

Lender	Term A Loans Term Loan Commitment	Commitment Percentage
OXFORD FINANCE LLC	$ 10,000,000.00	100.00%
TOTAL	**$ 10,000,000.00**	**100.00%**

Lender	Term B Loans Term Loan Commitment	Commitment Percentage
OXFORD FINANCE LLC	$ 5,000,000.00	100.00%
TOTAL	**$ 5,000,000.00**	**100.00%**

Lender	Aggregate (all Term Loans) Term Loan Commitment	Commitment Percentage
OXFORD FINANCE LLC	$ 15,000,000.00	100.00%
TOTAL	**$ 15,000,000.00**	**100.00%**

EXHIBIT A

Description of Collateral

The Collateral consists of all of Borrower's right, title and interest in and to the following personal property:

All goods, Accounts (including health-care receivables), Equipment, Inventory, contract rights or rights to payment of money, leases, license agreements, franchise agreements, General Intangibles (except as noted below), commercial tort claims, documents, instruments (including any promissory notes), chattel paper (whether tangible or electronic), cash, deposit accounts and other Collateral Accounts, all certificates of deposit, fixtures, letters of credit rights (whether or not the letter of credit is evidenced by a writing), securities, and all other investment property, supporting obligations, and financial assets, whether now owned or hereafter acquired, wherever located; and

All Borrower's Books relating to the foregoing, and any and all claims, rights and interests in any of the above and all substitutions for, additions, attachments, accessories, accessions and improvements to and replacements, products, proceeds and insurance proceeds of any or all of the foregoing.

Notwithstanding the foregoing, the Collateral does not include (i) any Intellectual Property; provided, however, the Collateral shall include all Accounts and all proceeds of Intellectual Property. If a judicial authority (including a U.S. Bankruptcy Court) would hold that a security interest in the underlying Intellectual Property is necessary to have a security interest in such Accounts and such property that are proceeds of Intellectual Property, then the Collateral shall automatically, and effective as of the Effective Date, include the Intellectual Property to the extent necessary to permit perfection of Collateral Agent's security interest in such Accounts and such other property of Borrower that are proceeds of the Intellectual Property; (ii) more than 65% of the total combined voting power of all classes of stock entitled to vote the shares of capital stock (the "Shares") of any Foreign Subsidiary, if Borrower demonstrates to Collateral Agent's reasonable satisfaction that a pledge of more than sixty five percent (65%) of the Shares of such Subsidiary creates a present and existing adverse tax consequence to Borrower under the U.S. Internal Revenue Code; the (iii) BofA Credit Card Account and (iv) any license or contract, in each case if the granting of a Lien in such license or contract is prohibited by or would constitute a default under the agreement governing such license or contract (but (A) only to the extent such prohibition is enforceable under applicable law and (B) other than to the extent that any such term would be rendered ineffective pursuant to Sections 9-406, 9-408 or 9-409 (or any other Section) of Division 9 of the Code); provided that upon the termination, lapsing or expiration of any such prohibition, such license or contract, as applicable, shall automatically be subject to the security interest granted in favor of Collateral Agent hereunder and become part of the "Collateral."

Pursuant to the terms of a certain negative pledge arrangement with Collateral Agent and the Lenders, Borrower has agreed not to encumber any of its Intellectual Property.

EXHIBIT B

Form of Disbursement Letter

[see attached]

DISBURSEMENT LETTER

[DATE]

The undersigned, being the duly elected and acting of POSEIDA THERAPEUTICS, INC., a Delaware corporation with offices located at 4242 Campus Point Court, Suite 700, San Diego, California 92121 on behalf of itself and each other Borrower under the Loan Agreement (as defined below) (individually and collectively, jointly and severally, "**Borrower**"), does hereby certify to **OXFORD FINANCE LLC** ("**Oxford**" and "**Lender**"), as collateral agent (the "**Collateral Agent**") and in connection with that certain Loan and Security Agreement dated as of July [_], 2017, by and among Borrower, Collateral Agent and the Lenders from time to time party thereto (the "**Loan Agreement**"; with other capitalized terms used below having the meanings ascribed thereto in the Loan Agreement) that:

1. The representations and warranties made by Borrower in Section 5 of the Loan Agreement and in the other Loan Documents are true and correct in all material respects as of the date hereof.

2. No event or condition has occurred that would constitute an Event of Default under the Loan Agreement or any other Loan Document.

3. Borrower is in compliance with the covenants and requirements contained in Sections 4, 6 and 7 of the Loan Agreement.

4. All conditions referred to in Section 3 of the Loan Agreement to the making of the Loan to be made on or about the date hereof have been satisfied or waived by Collateral Agent.

5. No Material Adverse Change has occurred.

6. The undersigned is a Responsible Officer.

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7. The proceeds of the Term [A][B] Loan shall be disbursed as follows:

Disbursement from Oxford:	
Loan Amount	$ _____
Plus:	
— Deposit Received	$
Less:	
— Facility Fee	($)
[— Interim Interest	($)]
—-Lender's Legal Fees	($)*
Net Proceeds due from Oxford:	**$** _____
TOTAL TERM [A][B] LOAN NET PROCEEDS FROM LENDERS	**$** _____

8. The [initial][Term A Loan][Term B Loan] shall amortize in accordance with the Amortization Table attached hereto.

9. The aggregate net proceeds of the Term Loans shall be transferred to the Designated Deposit Account as follows:

Account Name:	[BORROWER]
Bank Name:	[_____]
Bank Address:	[_____]
Account Number:	_____
ABA Number:	[_____]

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* Legal fees and costs are through the Effective Date. Post-closing legal fees and costs, payable after the Effective Date, to be invoiced and paid post-closing.

Dated as of the date first set forth above.

BORROWER:

POSEIDA THERAPEUTICS, INC., on behalf of itself and all other Borrowers

By _____
Name: _____
Title: _____

COLLATERAL AGENT AND LENDER:

OXFORD FINANCE LLC

By _____
Name: _____
Title: _____

AMORTIZATION TABLE
(Term [A][B] Loan)

[see attached]

EXHIBIT C

Compliance Certificate

TO: OXFORD FINANCE LLC, as Collateral Agent and Lender

FROM: POSEIDA THERAPEUTICS, INC., on behalf of itself and all other Borrowers

The undersigned authorized officer ("**Officer**") of POSEIDA THERAPEUTICS, INC., on behalf of itself and all other Borrowers under and as defined in the Loan Agreement (as defined herein below) (individually and collectively, jointly and severally, "**Borrower**"), hereby certifies that in accordance with the terms and conditions of the Loan and Security Agreement by and among Borrower, Collateral Agent, and the Lenders from time to time party thereto (the "**Loan Agreement**;" capitalized terms used but not otherwise defined herein shall have the meanings given them in the Loan Agreement),

(a) Borrower is in complete compliance for the period ending with all required covenants except as noted below;

(b) There are no Events of Default, except as noted below;

(c) Except as noted below, all representations and warranties of Borrower stated in the Loan Documents are true and correct in all material respects on this date and for the period described in (a), above; provided, however, that such materiality qualifier shall not be applicable to any representations and warranties that already are qualified or modified by materiality in the text thereof; and provided, further that those representations and warranties expressly referring to a specific date shall be true, accurate and complete in all material respects as of such date.

(d) Borrower, and each of Borrower's Subsidiaries, has timely filed all required tax returns and reports, Borrower, and each of Borrower's Subsidiaries, has timely paid all foreign, federal, state, and local taxes, assessments, deposits and contributions owed by Borrower, or Subsidiary, except as otherwise permitted pursuant to the terms of Section 5.8 of the Loan Agreement;

(e) No Liens have been levied or claims made against Borrower or any of its Subsidiaries relating to unpaid employee payroll or benefits of which Borrower has not previously provided written notification to Collateral Agent and the Lenders.

Attached are the required documents, if any, supporting our certification(s). The Officer, on behalf of Borrower, further certifies that the attached financial statements are prepared in accordance with Generally Accepted Accounting Principles (GAAP) and are consistently applied from one period to the next except as explained in an accompanying letter or footnotes and except, in the case of unaudited financial statements, for the absence of footnotes and subject to year-end audit adjustments as to the interim financial statements.

Please indicate compliance status since the last Compliance Certificate by circling Yes, No, or N/A under "Complies" column.

Reporting Covenant	Requirement	Actual	Complies
1) Financial statements	Monthly within 30 days		Yes No N/A
2) Annual (CPA Audited) statements	Within 180 days after FYE		Yes No N/A
3) Annual Financial Projections/Budget (prepared on a	Annually (within 60 days of FYE), and when revised		Yes No N/A

	quarterly basis)					
4)	A/R & A/P agings	If applicable		Yes	No	N/A
5)	8-K, 10-K and 10-Q Filings	If applicable, within 5 days of filing		Yes	No	N/A
6)	Compliance Certificate	Monthly within 30 days		Yes	No	N/A
7)	IP Report	When required		Yes	No	N/A
8)	Total amount of Borrower's cash and cash equivalents at the last day of the measurement period		$_____	Yes	No	N/A
9)	Total amount of Borrower's Subsidiaries' cash and cash equivalents at the last day of the measurement period		$_____	Yes	No	N/A

Deposit and Securities Accounts

(Please list all accounts; attach separate sheet if additional space needed)

	Institution Name	Account Number	New Account?	Account Control Agreement in place?
1)			Yes No	Yes No
2)			Yes No	Yes No
3)			Yes No	Yes No
4)			Yes No	Yes No

Other Matters

1)	Have there been any changes in management since the last Compliance Certificate?	Yes	No
2)	Have there been any transfers/sales/disposals/retirement of Collateral or IP prohibited by the Loan Agreement?	Yes	No
3)	Have there been any new or pending claims or causes of action against Borrower that involve more than One Hundred Fifty Thousand Dollars ($150,000.00)?	Yes	No
4)	Have there been any amendments of or other changes to the capitalization table of Borrower and to the Operating Documents of Borrower or any of its Subsidiaries? If yes, provide copies of any such amendments or changes with this Compliance Certificate.	Yes	No

Exceptions

Please explain any exceptions with respect to the certification above: (If no exceptions exist, state “No exceptions.” Attach separate sheet if additional space needed.)

POSEIDA THERAPEUTICS, INC., on behalf of itself and all other Borrowers

By _____
Name: _____
Title: _____

Date:

LENDER USE ONLY

Received by: _____ Date: _____

Verified by: _____ Date: _____

Compliance Status: Yes No

EXHIBIT D

Form of Secured Promissory Note

[see attached]

SECURED PROMISSORY NOTE
(Term [A][B] Loan)

$_____ Dated: [DATE]

FOR VALUE RECEIVED, the undersigned, POSEIDA THERAPEUTICS, INC., a Delaware corporation with offices located at 4242 Campus Point Court, Suite 700, San Diego, California 92121, VINDICO NANOBIOTECHNOLOGY LLC, a Delaware limited liability company with offices located at A264 ASTeCC 145 Graham Ave., Lexington, KY 40506 and POSEIDA THERAPEUTICS CYM, an exempted company organized under the laws of the Cayman Islands having a registered office at c/o International Corporation Services Ltd., Harbour Place, 2nd Floor, 103 South Church Street, P.O. Box 472, GeorgeTown, Grand Cayman KY1-1106 Cayman Islands (individually and collectively, jointly and severally, "**Borrower**") HEREBY PROMISES TO PAY to the order of OXFORD FINANCE LLC ("**Lender**") the principal amount of [_____] MILLION DOLLARS ($_____) or such lesser amount as shall equal the outstanding principal balance of the Term [A][B] Loan made to Borrower by Lender, plus interest on the aggregate unpaid principal amount of such Term [A][B] Loan, at the rates and in accordance with the terms of the Loan and Security Agreement dated July [_], 2017 by and among Borrower, Lender, Oxford Finance LLC, as Collateral Agent, and the other Lenders from time to time party thereto (as amended, restated, supplemented or otherwise modified from time to time, the "**Loan Agreement**"). If not sooner paid, the entire principal amount and all accrued and unpaid interest hereunder shall be due and payable on the Maturity Date as set forth in the Loan Agreement. Any capitalized term not otherwise defined herein shall have the meaning attributed to such term in the Loan Agreement.

Principal, interest and all other amounts due with respect to the Term [A][B] Loan, are payable in lawful money of the United States of America to Lender as set forth in the Loan Agreement and this Secured Promissory Note (this "**Note**"). The principal amount of this Note and the interest rate applicable thereto, and all payments made with respect thereto, shall be recorded by Lender and, prior to any transfer hereof, endorsed on the grid attached hereto which is part of this Note.

The Loan Agreement, among other things, (a) provides for the making of a secured Term [A][B] Loan by Lender to Borrower, and (b) contains provisions for acceleration of the maturity hereof upon the happening of certain stated events.

This Note may not be prepaid except as set forth in Section 2.2 (c) and Section 2.2(d) of the Loan Agreement.

This Note and the obligation of Borrower to repay the unpaid principal amount of the Term [A][B] Loan, interest on the Term [A][B] Loan and all other amounts due Lender under the Loan Agreement is secured under the Loan Agreement.

Presentment for payment, demand, notice of protest and all other demands and notices of any kind in connection with the execution, delivery, performance and enforcement of this Note are hereby waived.

Borrower shall pay all reasonable fees and expenses, including, without limitation, reasonable attorneys' fees and costs, incurred by Lender in the enforcement or attempt to enforce any of Borrower's obligations hereunder not performed when due.

This Note shall be governed by, and construed and interpreted in accordance with, the internal laws of the State of California.

The ownership of an interest in this Note shall be registered on a record of ownership maintained by Lender or its agent. Notwithstanding anything else in this Note to the contrary, the right to the principal of, and stated interest on, this Note may be transferred only if the transfer is registered on such record of ownership and the transferee is identified as the owner of an interest in the obligation. Borrower shall be entitled to treat the registered holder of this Note (as recorded on such record of ownership) as the owner in fact thereof for all purposes and shall not be bound to recognize any equitable or other claim to or interest in this Note on the part of any other person or entity.

[Balance of Page Intentionally Left Blank]

IN WITNESS WHEREOF, Borrower has caused this Note to be duly executed by one of its officers thereunto duly authorized on the date hereof.

BORROWER:

POSEIDA THERAPEUTICS, INC.
VINDICO NANOBIOTECHNOLOGY LLC
POSEIDA THERAPEUTICS CYM

By _____
Name: _____
Title: _____

LOAN INTEREST RATE AND PAYMENTS OF PRINCIPAL

Date	Principal Amount	Interest Rate	Scheduled Payment Amount	Notation By

CORPORATE BORROWING CERTIFICATE

BORROWER: [BORROWER] **DATE**: [DATE]
LENDER: OXFORD FINANCE LLC, as Collateral Agent and Lender

I hereby certify as follows, as of the date set forth above:

1. I am the Secretary, Assistant Secretary or other officer of Borrower. My title is as set forth below.

2. Borrower's exact legal name is set forth above. Borrower is a [BORROWER ORGANIZATION] existing under the laws of the State of [BORROWER STATE].

3. Attached hereto as Exhibit A and Exhibit B, respectively, are true, correct and complete copies of (i) Borrower's [Articles/Certificate of Incorporation (including amendments), as filed with the Secretary of State of the state in which Borrower is incorporated as set forth in paragraph 2 above] [Certificate of Incorporation issued by the Registry of Companies in the Cayman Islands]; and (ii) Borrower's [Bylaws] [Memorandum and Articles of Association]. Neither such Articles/Certificate of Incorporation nor such Bylaws have been amended, annulled, rescinded, revoked or supplemented, and such Articles/Certificate of Incorporation and such Bylaws remain in full force and effect as of the date hereof.

4. The following resolutions were duly and validly adopted by Borrower's Board of Directors at a duly held meeting of such directors (or pursuant to a unanimous written consent or other authorized corporate action). Such resolutions are in full force and effect as of the date hereof and have not been in any way modified, repealed, rescinded, amended or revoked, and the Lenders may rely on them until each Lender receives written notice of revocation from Borrower.

[*Balance of Page Intentionally Left Blank*]

RESOLVED, that **any one** of the following officers or employees of Borrower, whose names, titles and signatures are below, may act on behalf of Borrower:

Name	Title	Signature	Authorized to Add or Remove Signatories
			☐
			☐
			☐
			☐

RESOLVED FURTHER, that **any one** of the persons designated above with a checked box beside his or her name may, from time to time, add or remove any individuals to and from the above list of persons authorized to act on behalf of Borrower.

RESOLVED FURTHER, that such individuals may, on behalf of Borrower:

Borrow Money. Borrow money from the Lenders.

Execute Loan Documents. Execute any loan documents any Lender requires.

Grant Security. Grant Collateral Agent a security interest in any of Borrower's assets.

Negotiate Items. Negotiate or discount all drafts, trade acceptances, promissory notes, or other indebtedness in which Borrower has an interest and receive cash or otherwise use the proceeds.

[Issue Warrants. Issue warrants for Borrower's capital stock.]

Further Acts. Designate other individuals to request advances, pay fees and costs and execute other documents or agreements (including documents or agreement that waive Borrower's right to a jury trial) they believe to be necessary to effectuate such resolutions.

RESOLVED FURTHER, that all acts authorized by the above resolutions and any prior acts relating thereto are ratified.

[*Balance of Page Intentionally Left Blank*]

5. The persons listed above are Borrower's officers or employees with their titles and signatures shown next to their names.

By: _____
Name: _____
Title: _____

**** If the Secretary, Assistant Secretary or other certifying officer executing above is designated by the resolutions set forth in paragraph 4 as one of the authorized signing officers, this Certificate must also be signed by a second authorized officer or director of Borrower.*

I, the _____ of Borrower, hereby certify as to paragraphs 1 through 5 above, as
[print title]
of the date set forth above.

By: _____
Name: _____
Title: _____

[*Signature Page to Corporate Borrowing Certificate*]

EXHIBIT A

Articles/Certificate of Incorporation (including amendments)

[see attached]

EXHIBIT B

Bylaws

[see attached]

DEBTOR: **[BORROWER]**
SECURED PARTY: **OXFORD FINANCE LLC,**
as Collateral Agent

EXHIBIT A TO UCC FINANCING STATEMENT

Description of Collateral

The Collateral consists of all of Debtor's right, title and interest in and to the following personal property:

All goods, Accounts (including health-care receivables), Equipment, Inventory, contract rights or rights to payment of money, leases, license agreements, franchise agreements, General Intangibles (except as noted below), commercial tort claims, documents, instruments (including any promissory notes), chattel paper (whether tangible or electronic), cash, deposit accounts and other Collateral Accounts, all certificates of deposit, fixtures, letters of credit rights (whether or not the letter of credit is evidenced by a writing), securities, and all other investment property, supporting obligations, and financial assets, whether now owned or hereafter acquired, wherever located; and

All Borrower's Books relating to the foregoing, and any and all claims, rights and interests in any of the above and all substitutions for, additions, attachments, accessories, accessions and improvements to and replacements, products, proceeds and insurance proceeds of any or all of the foregoing.

Notwithstanding the foregoing, the Collateral does not include (i) any Intellectual Property; provided, however, the Collateral shall include all Accounts and all proceeds of Intellectual Property. If a judicial authority (including a U.S. Bankruptcy Court) would hold that a security interest in the underlying Intellectual Property is necessary to have a security interest in such Accounts and such property that are proceeds of Intellectual Property, then the Collateral shall automatically, and effective as of the Effective Date, include the Intellectual Property to the extent necessary to permit perfection of Collateral Agent's security interest in such Accounts and such other property of Borrower that are proceeds of the Intellectual Property; (ii) more than 65% of the total combined voting power of all classes of stock entitled to vote the shares of capital stock (the "Shares") of any Foreign Subsidiary, if Borrower demonstrates to Collateral Agent's reasonable satisfaction that a pledge of more than sixty five percent (65%) of the Shares of such Subsidiary creates a present and existing adverse tax consequence to Borrower under the U.S. Internal Revenue Code; and (iii) any license or contract, in each case if the granting of a Lien in such license or contract is prohibited by or would constitute a default under the agreement governing such license or contract (but (A) only to the extent such prohibition is enforceable under applicable law and (B) other than to the extent that any such term would be rendered ineffective pursuant to Sections 9-406, 9-408 or 9-409 (or any other Section) of Division 9 of the Code); provided that upon the termination, lapsing or expiration of any such prohibition, such license or contract, as applicable, shall automatically be subject to the security interest granted in favor of Collateral Agent hereunder and become part of the "Collateral."

Pursuant to the terms of a certain negative pledge arrangement with Collateral Agent and the Lenders, Debtor has agreed not to encumber any of its Intellectual Property.

Capitalized terms used but not defined herein have the meanings ascribed in the Uniform Commercial Code in effect in the State of California as in effect from time to time (the "Code") or, if not defined in the Code, then in the Loan and Security Agreement by and between Debtor, Secured Party and the other Lenders party thereto (as modified, amended and/or restated from time to time).

CONSENT AND FIRST AMENDMENT TO LOAN AND SECURITY AGREEMENT

THIS CONSENT AND FIRST AMENDMENT to Loan and Security Agreement (this "**Amendment**") is entered into as of May 15, 2018 (the "**Amendment Date**"), by and among OXFORD FINANCE LLC, a Delaware limited liability company with an office located at 133 North Fairfax Street, Alexandria, Virginia 22314 (in its individual capacity, "**Oxford**"; and in its capacity as Collateral Agent, "**Collateral Agent**"), the Lenders listed on Schedule 1.1 thereof from time to time including Oxford in its capacity as a Lender (each a "**Lender**" and collectively, the "**Lenders**"), and POSEIDA THERAPEUTICS, INC., a Delaware corporation with offices located at 4242 Campus Point Court, Suite 700, San Diego, California 92121 ("**Parent**"), VINDICO NANOBIOTECHNOLOGY LLC, a Delaware limited liability company and a wholly owned subsidiary of Parent with offices located at A264 ASTeCC 145 Graham Ave., Lexington, KY 40506 ("**US Sub**") and POSEIDA THERAPEUTICS CYM, an exempted company organized under the laws of the Cayman Islands and a wholly owned subsidiary of the Parent having a registered office at c/o International Corporation Services Ltd., Harbour Place, 2nd Floor, 103 South Church Street, P.O. Box 472, GeorgeTown, Grand Cayman KY1-1106 Cayman Islands ("**Cayman Sub**," and together with the Parent and the US Sub, individually and collectively, jointly and severally, "**Old Borrower**").

WHEREAS, Collateral Agent, Old Borrower and the Lenders party thereto from time to time have entered into that certain Loan and Security Agreement, dated as of July 25, 2017 (as amended, restated, supplemented or otherwise modified from time to time, the "**Loan Agreement**") pursuant to which the Lenders have provided to Borrower certain loans in accordance with the terms and conditions thereof; and

WHEREAS, Parent wishes to effect a voluntary liquidation and dissolution of Cayman Sub and has requested Collateral Agent's and Required Lenders' consent under the Loan Agreement to remove and release Cayman Sub from all obligations under the Loan Agreement and the Loan Documents (to which it is a party) and to the voluntary liquidation and dissolution of Cayman Sub;

WHEREAS, Borrower, Lenders and Collateral Agent desire to amend certain provisions of the Loan Agreement and grant certain consents under the Loan Agreement as provided herein and subject to the terms and conditions set forth herein;

NOW, THEREFORE, in consideration of the promises, covenants and agreements contained herein, and other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, Borrower, Lenders and Collateral Agent hereby agree as follows:

1. **Definitions.** Capitalized terms used herein but not otherwise defined shall have the respective meanings given to them in the Loan Agreement.

2. **Consent.** Subject to the terms and conditions set forth herein, Collateral Agent and Required Lenders hereby consent to the:

    a. removal and release of Cayman Sub as a Borrower under the Loan Agreement and all Loan Documents to which Cayman Sub is a party and all ancillary documents contemplated thereunder;

    b. termination of any or all agreements, contracts, licenses and all other legally binding documents and arrangements to which Cayman Sub is a party (including but not limited to the closing of all bank accounts of Cayman Sub), prior to the commencement of the voluntary liquidation of the Cayman Sub; and

    c. the voluntary liquidation of, and the dissolution of Cayman Sub pursuant to the laws of the Cayman Islands and any and all distributions from Cayman Sub to the Parent.

3. Section 5.10 of the Loan Agreement is hereby amended and restated in its entirety as follows:

5.10 Shares. Borrower has full power and authority to create a first lien on the Shares and no disability or contractual obligation exists that would prohibit Borrower from pledging the Shares pursuant to this Agreement or any other applicable Loan Document. To Borrower's knowledge, there are no subscriptions, warrants, rights of first refusal or other restrictions on transfer relative to, or options exercisable with respect to the Shares. The Shares have been and will be duly authorized and validly issued, and are fully paid and non assessable. To Borrower's knowledge, the Shares are not the subject of any present or threatened suit, action, arbitration, administrative or other proceeding, and Borrower knows of no reasonable grounds for the institution of any such proceedings.

4. The Loan Agreement is hereby amended by adding the following Section 6.13 therein:

6.13 Liquidation and Dissolution of Cayman Sub.

(a) As soon as available but no later than May 30, 2018, Borrower must, provide evidence (which must be in such form and substance as is reasonably acceptable to Collateral Agent) to Collateral Agent of (A) commencement of the voluntary liquidation of Cayman Sub pursuant to the laws of the Cayman Islands; and (B) the Transfer of all assets, including without limitation all Intellectual Property, of the Cayman Sub to the Parent and / or the US Sub or the termination of all licenses of Intellectual Property granted by the Parent and / or the US Sub to the Cayman Sub.

(b) As soon as available but no later than November 30, 2018, Borrower must either (i) provide evidence (which must be in such form and substance as is reasonably acceptable to Collateral Agent) to Collateral Agent of the dissolution of the Cayman Sub or (ii) deliver to Collateral Agent (A) the certificate(s) for the Shares of Cayman Sub (or such proportion thereof as are included in the Collateral pursuant to Exhibit A of the Loan Agreement), together with share transfers, duly executed in blank and (B) a duly executed share mortgage governed by the laws of the Cayman Islands between Parent and the Collateral Agent in relation to the shares in Cayman Sub, which mortgage must be in substantially the form of the Cayman Share Mortgage in effect prior to the First Amendment becoming effective.

5. The Loan Agreement is hereby amended by adding the following Section 7.12 therein:

7.12 Cayman Sub Assets. Allow or permit the aggregate value of all assets held by the Cayman Sub to exceed $70,000 at any given time, or to exceed $65,000 for a period of more than five (5) Business Days (any assets in excess of $65,000 must be transferred to the Parent in such five (5) Business Day period).

6. Section 8.2(a) of the Loan Agreement is hereby amended and restated in its entirety as follows:

(a) Borrower or any of its Subsidiaries fails or neglects to perform any obligation in Sections 6.2 (Financial Statements, Reports, Certificates), 6.4 (Taxes), 6.5 (Insurance), 6.6 (Operating Accounts), 6.7 (Protection of Intellectual Property Rights), 6.9 (Notice of Litigation and Default), 6.10 (Landlord Waivers; Bailee Waivers), 6.11 (Creation/Acquisition of Subsidiaries), 6.12 (Further Assurances) or 6.13 (Liquidation and Dissolution of Cayman Sub) or Borrower violates any covenant in Section 7; or

7. Section 13.1 of the Loan Agreement is hereby amended by amending and restating the following definitions therein as set forth below:

"**Borrower**" is individually and collectively, jointly and severally, Parent and US Sub.

"**Collateral**" is any and all properties, rights and assets of Borrower described on Exhibit A;

"**Loan Documents**" are, collectively, this Agreement, the Warrants, the Post Closing Letter, the Perfection Certificates, each Compliance Certificate, each Disbursement Letter, any subordination agreements, any note, or notes or guaranties executed by Borrower or any other Person, and any other present or future agreement entered into by Borrower, any Guarantor or any other Person for the benefit of the Lenders and Collateral Agent in connection with this Agreement; all as amended, restated, or otherwise modified.

"**Operating Documents**" are, for any Person, such Person's formation documents, as certified by the Secretary of State (or equivalent agency) of such Person's jurisdiction of organization on a date that is no earlier than thirty (30) days prior to the Effective Date, and, (a) if such Person is a corporation, its bylaws in current form, (b) if such Person is a limited liability company, its limited liability company agreement (or similar agreement), (c) if such Person is a partnership, its partnership agreement (or similar agreement), each of the foregoing with all current amendments or modifications thereto and (d) if such Person is an exempted company, its certificate of incorporation, statutory registers, and memorandum and articles of association.

"**Registered Organization**" with respect to the Parent and the US Sub, is any "registered organization" as defined in the Code with such additions to such term as may hereafter be made.

8. Section 13.1 is hereby further amended by adding the following definition therein in alphabetical order:

"**First Amendment**" is that certain Consent and First Amendment to this Agreement, entered into as of May 15, 2018, by and among Collateral Agent, Borrower, Lenders and Cayman Sub.

9. Termination of Security Interest in Cayman Sub.

(a) With effective from the Amendment Date, other than as set forth herein and upon completion of the matters set out in paragraph (b) below, the Cayman Debenture and the Cayman Share Mortgage shall be terminated and any and all security interests or pledges granted thereunder or by Cayman Sub under the Loan Agreement shall be released and any and all Obligations of Cayman Sub under the Loan Agreement, the Cayman Debenture and the Cayman Share Mortgage shall be discharged in full and all assets reassigned.

(b) On the Amendment Date, the Collateral Agent and the Lender shall,

(i) enter into a deed of release and reassignment of the Cayman Share Mortgage, Cayman Debenture, and any and all other security interest and pledges created under the Loan Agreement or the Loan Documents;

(ii) return the share certificate and share transfer provided by the Borrower pursuant to Schedule 1 of the Cayman Share Mortgage;

(iii) provide a written release of the undertaking given by Cayman Sub pursuant to Schedule 2 of the Cayman Share Mortgage;

(iv) return the executed but undated letters of resignation and release together with the letters of authority of the directors of Cayman Sub provided pursuant to Schedule 3 of the Cayman Share Mortgage;

(v) return the executed but undated irrevocable proxy for all general meetings of Cayman Sub provided pursuant to Schedule 4 of the Cayman Share Mortgage;

(vi) provide a written consent for Cayman Sub and Parent to revoke the instructions in the Notice of Mortgage provided to International Corporate Services Limited pursuant to Schedule 6 of the Cayman Share Mortgage;

(vii) provide a written release of the undertaking given by International Corporate Services Limited, the (Registered Office Undertaking) pursuant to Schedule 7 of the Cayman Share Mortgage;

(viii) deliver the original Notes pursuant to the Loan Agreement; and

(ix) enter into an agreement to amend or amend and restate any Control Agreements entered into by Cayman Sub pursuant to the Loan Agreement to exclude the Cayman Sub and its accounts therefrom.

(c) Collateral Agent and the Lender agree, at the request of Borrower to do all such other acts and things necessary or desirable to give effect to the provisions of this Amendment and the full release of any lien, security interest or pledge pursuant to the Loan Documents in any jurisdictions with respect to Cayman Sub's assets and the reassignment of such assets back to Cayman Sub.

(d) With effect from the Amendment Date, Collateral Agent and Lenders authorize Borrower (or its agents, designees or representatives) to file any documents necessary to release or terminate any security interest, lien or pledge in any jurisdiction with respect to Cayman Sub's assets.

(e) For the purposes of clarity, all parties hereto agree that upon this Amendment becoming effective, the Cayman Sub shall cease to be a Borrower under the Loan Agreement and shall have no further obligation under the Loan Documents.

10. Limitation of Amendment.

a. The amendments set forth in Sections 2 through 8 above are effective for the purposes set forth herein and shall be limited precisely as written and shall not be deemed to (a) be a consent to any amendment, waiver or modification of any other term or condition of any Loan Document as amended hereby, or (b) otherwise prejudice any right, remedy or obligation which Lenders or Borrower may now have or may have in the future under or in connection with any Loan Document, as amended hereby.

b. This Amendment shall be construed in connection with and as part of the Loan Documents and all terms, conditions, representations, warranties, covenants and agreements set forth in the Loan Documents, except as herein amended, are hereby ratified and confirmed and shall remain in full force and effect.

11. To induce Collateral Agent and Lenders to enter into this Amendment, Borrower hereby represents and warrants to Collateral Agent and Lenders as follows:

a. Immediately after giving effect to this Amendment (a) the representations and warranties contained in the Loan Documents are true, accurate and complete in all material respects as of the date hereof (except to the extent such representations and warranties relate to an earlier date, in which case they are true and correct as of such date), and (b) no Event of Default has occurred and is continuing;

b. Borrower has the power and due authority to execute and deliver this Amendment and to perform its obligations under the Loan Agreement, as amended by this Amendment;

c. The organizational documents of Borrower delivered to Collateral Agent on the Effective Date, and updated pursuant to subsequent deliveries by the Borrower to the Collateral Agent, remain true, accurate and complete and have not been amended, supplemented or restated and are and continue to be in full force and effect;

d. The execution and delivery by Borrower of this Amendment and the performance by Borrower of its obligations under the Loan Agreement, as amended by this Amendment, have been duly authorized;

e. The execution and delivery by Borrower of this Amendment and the performance by Borrower of its obligations under the Loan Agreement, as amended by this Amendment, do not and will not contravene (i) any law or regulation binding on or affecting Borrower, (ii) any contractual restriction with a Person binding on Borrower, (iii) any order, judgment or decree of any court or

other governmental or public body or authority, or subdivision thereof, binding on Borrower, or (iv) the organizational documents of Borrower;

f. The execution and delivery by Borrower of this Amendment and the performance by Borrower of its obligations under the Loan Agreement, as amended by this Amendment, do not require any order, consent, approval, license, authorization or validation of, or filing, recording or registration with, or exemption by any governmental or public body or authority, or subdivision thereof, binding on Borrower, except as already has been obtained or made; and

g. This Amendment has been duly executed and delivered by Borrower and is the binding obligation of Borrower, enforceable against Borrower in accordance with its terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, liquidation, moratorium or other similar laws of general application and equitable principles relating to or affecting creditors' rights.

12. Except as expressly set forth herein, the Loan Agreement shall continue in full force and effect without alteration or amendment. This Amendment and the Loan Documents as amended hereby represent the entire agreement about this subject matter and supersede prior negotiations or agreements.

13. This Amendment shall be deemed effective as of the Amendment Date upon (a) the due execution and delivery to Collateral Agent of this Amendment by each party hereto, (b) the due execution and/or delivery of the items set out in clause 8(b) of this Amendment (c) delivery by Borrower of executed Secured Promissory Notes amending and restating the Secured Promissory Notes setting out the Notes outstanding immediately prior to this Amendment becoming effective and (d) Borrower's payment of all Lenders' Expenses incurred through the date hereof, which may be debited (or ACH'd) from any of Borrower's accounts.

14. This Amendment may be executed in any number of counterparts, each of which shall be deemed an original, and all of which, taken together, shall constitute one and the same instrument.

15. This Amendment and the rights and obligations of the parties hereto shall be governed by and construed in accordance with the laws of the State of California.

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IN WITNESS WHEREOF, the parties hereto have caused this First Amendment to Loan and Security Agreement to be executed as of the date first set forth above.

BORROWER:

POSEIDA THERAPEUTICS, INC.
VINDICO NANOBIOTECHNOLOGY LLC
POSEIDA THERAPEUTICS CYM (shall cease to be a Borrower upon this Amendment becoming effective)

By /s/ Mark Gergen
Name: Mark Gergen
Title: CBO & CFO

COLLATERAL AGENT AND LENDER:

OXFORD FINANCE LLC

By /s/ Colette H. Featherly
Name: Colette H. Featherly
Title: Senior Vice President

Exhibit A

Form of Amended and Restated Secured Promissory Note

[see attached]

AMENDED AND RESTATED SECURED PROMISSORY NOTE
(Term [A][B] Loan)

[This Note amends and restates in its entirety that certain Secured Promissory Note issued by Borrower and POSEIDA THERAPEUTICS CYM, an exempted company organized under the laws of the Cayman Islands ("**Cayman Sub**") to Lender on July 25, 2017 in the original principal amount of [ ], in respect of which Cayman Sub is no longer a party.]

$_____ Dated: [DATE]

FOR VALUE RECEIVED, the undersigned, POSEIDA THERAPEUTICS, INC., a Delaware corporation with offices located at 4242 Campus Point Court, Suite 700, San Diego, California 92121 and VINDICO NANOBIOTECHNOLOGY LLC, a Delaware limited liability company with offices located at A264 ASTeCC 145 Graham Ave., Lexington, KY 40506 (individually and collectively, jointly and severally, "**Borrower**") HEREBY PROMISES TO PAY to the order of OXFORD FINANCE LLC ("**Lender**") the principal amount of [_____] MILLION DOLLARS ($_____) or such lesser amount as shall equal the outstanding principal balance of the Term [A][B] Loan made to Borrower by Lender, plus interest on the aggregate unpaid principal amount of such Term [A][B] Loan, at the rates and in accordance with the terms of the Loan and Security Agreement dated July [_], 2017 by and among Borrower, Lender, Oxford Finance LLC, as Collateral Agent, and the other Lenders from time to time party thereto (as amended, restated, supplemented or otherwise modified from time to time, the "**Loan Agreement**"). If not sooner paid, the entire principal amount and all accrued and unpaid interest hereunder shall be due and payable on the Maturity Date as set forth in the Loan Agreement. Any capitalized term not otherwise defined herein shall have the meaning attributed to such term in the Loan Agreement.

Principal, interest and all other amounts due with respect to the Term [A][B] Loan, are payable in lawful money of the United States of America to Lender as set forth in the Loan Agreement and this Secured Promissory Note (this "**Note**"). The principal amount of this Note and the interest rate applicable thereto, and all payments made with respect thereto, shall be recorded by Lender and, prior to any transfer hereof, endorsed on the grid attached hereto which is part of this Note.

The Loan Agreement, among other things, (a) provides for the making of a secured Term [A][B] Loan by Lender to Borrower, and (b) contains provisions for acceleration of the maturity hereof upon the happening of certain stated events.

This Note may not be prepaid except as set forth in Section 2.2 (c) and Section 2.2(d) of the Loan Agreement.

This Note and the obligation of Borrower to repay the unpaid principal amount of the Term [A][B] Loan, interest on the Term [A][B] Loan and all other amounts due Lender under the Loan Agreement is secured under the Loan Agreement.

Presentment for payment, demand, notice of protest and all other demands and notices of any kind in connection with the execution, delivery, performance and enforcement of this Note are hereby waived.

Borrower shall pay all reasonable fees and expenses, including, without limitation, reasonable attorneys' fees and costs, incurred by Lender in the enforcement or attempt to enforce any of Borrower's obligations hereunder not performed when due.

This Note shall be governed by, and construed and interpreted in accordance with, the internal laws of the State of California.

The ownership of an interest in this Note shall be registered on a record of ownership maintained by Lender or its agent. Notwithstanding anything else in this Note to the contrary, the right to the principal of, and stated interest on, this Note may be transferred only if the transfer is registered on such record of ownership and the transferee is identified as the owner of an interest in the obligation. Borrower shall be entitled to treat the registered holder of this Note (as recorded on such record of ownership) as the owner in fact thereof for all purposes and shall

not be bound to recognize any equitable or other claim to or interest in this Note on the part of any other person or entity.

[Balance of Page Intentionally Left Blank]

IN WITNESS WHEREOF, Borrower has caused this Note to be duly executed by one of its officers thereunto duly authorized on the date hereof.

BORROWER:

POSEIDA THERAPEUTICS, INC.
VINDICO NANOBIOTECHNOLOGY LLC

By _____
Name: _____
Title: _____

LOAN INTEREST RATE AND PAYMENTS OF PRINCIPAL

Date	Principal Amount	Interest Rate	Scheduled Payment Amount	Notation By

SECOND AMENDMENT TO LOAN AND SECURITY AGREEMENT

THIS SECOND AMENDMENT to Loan and Security Agreement (this "**Amendment**") is entered into as of August 13, 2018 (the "**Second Amendment Date**"), by and among OXFORD FINANCE LLC, a Delaware limited liability company with an office located at 133 North Fairfax Street, Alexandria, Virginia 22314 (in its individual capacity, "**Oxford**"; and in its capacity as Collateral Agent, "**Collateral Agent**"), the Lenders listed on Schedule 1.1 thereof from time to time including Oxford in its capacity as a Lender (each a "**Lender**" and collectively, the "**Lenders**"), and POSEIDA THERAPEUTICS, INC., a Delaware corporation with offices located at 4242 Campus Point Court, Suite 700, San Diego, California 92121 and VINDICO NANOBIOTECHNOLOGY LLC, a Delaware limited liability company and a wholly owned subsidiary of Parent with offices located at 4242 Campus Point Court, Suite 700, San Diego, California 92121 individually and collectively, jointly and severally, "**Borrower**").

WHEREAS, Collateral Agent, Borrower and the Lenders party thereto from time to time have entered into that certain Loan and Security Agreement, dated as of July 25, 2017 (as amended, restated, supplemented or otherwise modified from time to time, the "**Loan Agreement**") pursuant to which the Lenders have provided to Borrower certain loans in accordance with the terms and conditions thereof; and

WHEREAS, Borrower, Lenders and Collateral Agent desire to amend certain provisions of the Loan Agreement as provided herein and subject to the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the promises, covenants and agreements contained herein, and other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, Borrower, Lenders and Collateral Agent hereby agree as follows:

1. **Definitions.** Capitalized terms used herein but not otherwise defined shall have the respective meanings given to them in the Loan Agreement.

2. Section 2.2(a) of the Loan Agreement is hereby amended and restated in its entirety as follows:

(a) Availability.

(i) Subject to the terms and conditions of this Agreement, the Lenders, severally and not jointly, made term loans to Borrower on the Effective Date in an aggregate amount of Ten Million Dollars ($10,000,000.00) according to each Lender's Term A Loan Commitment as set forth on Schedule 1.1 hereto (as in effect prior to the Second Amendment Date) (such term loans are hereinafter referred to singly as an "**Original Term A Loan**", and collectively as the "**Original Term A Loans**").

(ii) Subject to the terms and conditions of this Agreement, the Lenders agree, severally and not jointly, to make term loans to Borrower on the Second Amendment Date in an aggregate amount of Ten Million Dollars ($10,000,000.00) according to each Lender's New Term A Loan Commitment as set forth on Schedule 1.1 hereto (such term loans are hereinafter referred to singly as a "**New Term A Loan**", and collectively as the "**New Term A Loans**," and together with the Original Term A Loans, the "**Term A Loans**"). After repayment, no Term A Loan may be re-borrowed.

(iii) Subject to the terms and conditions of this Agreement, the Lenders agree, severally and not jointly, during the Second Draw Period, to make term loans to Borrower in an aggregate amount up to Ten Million Dollars ($10,000,000.00) according to each Lender's Term B Loan Commitment as set forth on Schedule 1.1 hereto (such term loans are hereinafter referred to singly as a "**Term B Loan**", and collectively as the "**Term B Loans**"; each Term A Loan or Term B Loan is hereinafter referred to singly as a "**Term Loan**" and the Term A Loans and the Term B Loans are hereinafter referred to collectively as the "**Term Loans**"). After repayment, no Term B Loan may be re-borrowed.

3. Section 2.2(b) of the Loan Agreement is hereby amended and restated in its entirety as follows:

(b) Repayment. Borrower shall make monthly payments of interest only commencing on the first (1st) Payment Date following the Funding Date of each Term Loan, and continuing on the Payment Date of each successive month thereafter through and including the Payment Date immediately preceding the Amortization Date. Borrower agrees to pay, on the Funding Date of each Term Loan, any initial partial monthly interest payment otherwise due for the period between the Funding Date of such Term Loan and the first Payment Date thereof. Commencing on the Amortization Date, and continuing on the Payment Date of each month thereafter, Borrower shall make consecutive equal monthly payments of principal, together with applicable interest, in arrears, to each Lender, as calculated by Collateral Agent (which calculations shall be deemed correct absent manifest error) based upon: (1) the amount of such Lender's Term Loan, (2) the effective rate of interest, as determined in Section 2.3(a), and (3) a repayment schedule equal to (i) thirty-six (36) months, if the Positive Data Event does not occur and (ii) thirty (30) months, if the Positive Data Event occurs. All unpaid principal and accrued and unpaid interest with respect to each Term Loan is due and payable in full on the Maturity Date. Each Term Loan may only be prepaid in accordance with Sections 2.2(c) and 2.2(d).

4. Section 2.4 of the Loan Agreement is hereby amended and restated in its entirety as follows:

2.4 Secured Promissory Notes. The Term Loans shall be evidenced by a Secured Promissory Note or Notes in the form attached as **Exhibit D-1** hereto (other than the Secured Promissory Notes evidencing the Original Term A Loans which shall be in the form attached as **Exhibit D-2** hereto) (each a "**Secured Promissory Note**"), and shall be repayable as set forth in this Agreement. Borrower irrevocably authorizes each Lender to make or cause to be made, on or about the Funding Date of any Term Loan or at the time of receipt of any payment of principal on such Lender's Secured Promissory Note, an appropriate notation on such Lender's Secured Promissory Note Record reflecting the making of such Term Loan or (as the case may be) the receipt of such payment. The outstanding amount of each Term Loan set forth on such Lender's Secured Promissory Note Record shall be prima facie evidence of the principal amount thereof owing and unpaid to such Lender, but the failure to record, or any error in so recording, any such amount on such Lender's Secured Promissory Note Record shall not limit or otherwise affect the obligations of Borrower under any Secured Promissory Note or any other Loan Document to make payments of principal of or interest on any Secured Promissory Note when due. Upon receipt of an affidavit of an officer of a Lender as to the loss, theft, destruction, or mutilation of its Secured Promissory Note, Borrower shall issue, in lieu thereof, a replacement Secured Promissory Note in the same principal amount thereof and of like tenor.

5. Section 2.5 of the Loan Agreement is hereby amended and restated in its entirety as follows:

2.5 Fees. Borrower shall pay to Collateral Agent:

(a) Facility Fee. A fully earned, non refundable facility fee of One Hundred Fifty Thousand Dollars ($150,000.00) to be shared between the Lenders pursuant to their respective Commitment Percentages payable as follows: (i) Seventy Five Thousand Dollars ($75,000.00) shall be due and payable on the Effective Date; (ii) Twenty Five Thousand Dollars ($25,000.00) shall be due and payable on the Second Amendment Date; and (iii) Fifty Thousand Dollars ($50,000.00) shall be due and payable on the Funding Date of the Term B Loans.

(b) Good Faith Deposit. An amount of Thirty Thousand Dollars ($30,000.00) has been received by Collateral Agent as good faith deposit from Borrower on or about June 27, 2017, which amount shall be applied towards the facility fee due under Section 2.5(a) hereof on the Effective Date. A further amount of Twenty Thousand Dollars ($20,000.00) has been received by Collateral Agent as good faith deposit from Borrower on or about July 17, 2018, which amount shall be applied towards the facility fee due under Section 2.5(a) hereof on the Second Amendment Date. For the purposes of clarity, Borrower shall be responsible for the entire amount of facility fee payable pursuant to Section 2.5(a) hereof.

(c) Final Payment.

i. The Final Payment, when due hereunder, to be shared between the Lenders in accordance with their respective Pro Rata Shares; and

ii. A fully-earned, non-refundable final payment, due on the Second Amendment Date in connection with the Original Term A Loans, in the aggregate amount of Eight Hundred Fifty Thousand Dollars ($850,000.000) (the "**Second Amendment Final Payment**"), payable to the Lenders in accordance with their respective Pro Rata Shares (as determined immediately prior to the Second Amendment Date). For the sake of clarity, the Second Amendment Final Payment shall not reduce the Final Payment otherwise due in connection with Section 2.5(c)(i) hereof.

(d) Prepayment Fee. The Prepayment Fee, when due hereunder, to be shared between the Lenders in accordance with their respective Pro Rata Shares; Notwithstanding anything herein to the contrary, Lenders hereby waive any Prepayment Fee on the Original Term A Loans on the Second Amendment Date; and

(e) Lenders' Expenses. All Lenders' Expenses (including reasonable attorneys' fees and expenses for documentation and negotiation of this Agreement) incurred through and after the Effective Date, when due.

6. Section 13.1 of the Loan Agreement is hereby amended by amending and restating the following definitions therein as set forth below:

"**Amortization Date**" is (i) April 1, 2020, if the Positive Data Event does not occur and (ii) October 1, 2020, if the Positive Data Event occurs.

"**Basic Rate**" is, with respect to a Term Loan, the per annum rate of interest (based on a year of three hundred sixty (360) days) equal to the greater of (i) eight and ninety-four hundredths percent (8.94%) and (ii) the sum of (a) the thirty (30) day U.S. LIBOR rate reported in The Wall Street Journal on the last Business Day of the month that immediately precedes the month in which the interest will accrue, plus (b) six and ninety-four hundredths percent (6.94%). If The Wall Street Journal (or another nationally recognized rate reporting source acceptable to Collateral Agent) no longer reports the U.S. LIBOR Rate or if such interest rate no longer exists or if The Wall Street Journal no longer publishes the U.S. LIBOR Rate or ceases to exist, Collateral Agent may in good faith select a replacement interest rate or replacement publication, as the case may be. Notwithstanding the foregoing, the Basic Rate for the Term Loan for the period from the Effective Date through and including July 31, 2017 shall be eight and eighteen hundredths percent (8.18%) and the Basic Rate for the Term Loans from the Second Amendment Date through and including August 31, 2018 shall be 9.02%.

"**Final Payment Percentage**" is seven and fifty hundredths percent (7.50%).

"**Maturity Date**" is, for each Term Loan, March 1, 2023.

"**Positive Data Event**" is publicly reporting of positive interim data by Borrower, on or before December 20, 2018, on at least 9 patients from the second patient cohort or higher in the ongoing Phase 1 trial of Borrower's drug candidate P-BCMA-101 in multiple myeloma at a scientific conference, which data must be in such form and substance as is reasonably acceptable to Collateral Agent.

"**Second Draw Period**" is the period commencing on the later of (i) the date of the occurrence of the Positive Data Event and (ii) October 1, 2018 and ending on the earliest of (i) the date that is sixty (60) days immediately after the occurrence of the Positive Data Event, (ii) December 20, 2018 and (iii) the occurrence of an Event of Default; provided, however, that the Second Draw Period shall not commence if on the date that it would have otherwise commenced an Event of Default has occurred and is continuing.

"Solvent" is, with respect to any Person: the fair salable value of such Person's consolidated assets (including goodwill minus disposition costs) exceeds the fair value of such Person's liabilities (excluding any amounts booked as a liability related to the CIRM grants not to exceed $23,700,000 in the aggregate); such Person is not left with unreasonably small capital after the transactions in this Agreement; and such Person is able to pay its debts (including trade debts) as they mature.

7. Section 13.1 is hereby further amended by adding the following definition therein in alphabetical order:

"**Second Amendment Date**" is August 13, 2018.

8. Schedule 1.1 to the Loan Agreement is hereby amended and restated in its entirety as set forth on Schedule 1.1 hereto.

9. Exhibit D to the Loan Agreement is hereby deleted in its entirety and Exhibit D-1 (in the form attached hereto as Exhibit A) and Exhibit D-2 (in the form attached hereto as Exhibit B) are hereby added to the Loan Agreement.

10. The Amortization Table attached to the Disbursement Letter dated as of the Effective Date is hereby amended and restated in its entirety as set forth on Exhibit C hereto.

11. Limitation of Amendment.

    a. The amendments set forth in Sections 2 through 10 above are effective for the purposes set forth herein and shall be limited precisely as written and shall not be deemed to (a) be a consent to any amendment, waiver or modification of any other term or condition of any Loan Document as amended hereby, or (b) otherwise prejudice any right, remedy or obligation which Lenders or Borrower may now have or may have in the future under or in connection with any Loan Document, as amended hereby.

    b. This Amendment shall be construed in connection with and as part of the Loan Documents and all terms, conditions, representations, warranties, covenants and agreements set forth in the Loan Documents, except as herein amended, are hereby ratified and confirmed and shall remain in full force and effect.

12. To induce Collateral Agent and Lenders to enter into this Amendment, Borrower hereby represents and warrants to Collateral Agent and Lenders as follows:

    a. Immediately after giving effect to this Amendment (a) the representations and warranties contained in the Loan Documents are true, accurate and complete in all material respects as of the date hereof (except to the extent such representations and warranties relate to an earlier date, in which case they are true and correct as of such date), and (b) no Event of Default has occurred and is continuing;

    b. Borrower has the power and due authority to execute and deliver this Amendment and to perform its obligations under the Loan Agreement, as amended by this Amendment;

    c. The organizational documents of Borrower delivered to Collateral Agent on the Effective Date, and updated pursuant to subsequent deliveries by the Borrower to the Collateral Agent, remain true, accurate and complete and have not been amended, supplemented or restated and are and continue to be in full force and effect;

    d. The execution and delivery by Borrower of this Amendment and the performance by Borrower of its obligations under the Loan Agreement, as amended by this Amendment, have been duly authorized;

    e. The execution and delivery by Borrower of this Amendment and the performance by Borrower of its obligations under the Loan Agreement, as amended by this Amendment, do not and will not contravene (i) any law or regulation binding on or affecting Borrower, (ii) any contractual restriction with a Person binding on Borrower, (iii) any order, judgment or decree of any court or

other governmental or public body or authority, or subdivision thereof, binding on Borrower, or (iv) the organizational documents of Borrower;

f. The execution and delivery by Borrower of this Amendment and the performance by Borrower of its obligations under the Loan Agreement, as amended by this Amendment, do not require any order, consent, approval, license, authorization or validation of, or filing, recording or registration with, or exemption by any governmental or public body or authority, or subdivision thereof, binding on Borrower, except as already has been obtained or made; and

g. This Amendment has been duly executed and delivered by Borrower and is the binding obligation of Borrower, enforceable against Borrower in accordance with its terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, liquidation, moratorium or other similar laws of general application and equitable principles relating to or affecting creditors' rights.

13. The Borrower hereby remises, releases, acquits, satisfies and forever discharges the Lenders and Collateral Agent, their agents, employees, officers, directors, predecessors, attorneys and all others acting or purporting to act on behalf of or at the direction of the Lenders and Collateral Agent **(**"**Releasees**"), of and from any and all manner of actions, causes of action, suit, debts, accounts, covenants, contracts, controversies, agreements, variances, damages, judgments, claims and demands whatsoever, in law or in equity, which any of such parties ever had, now has or, to the extent arising from or in connection with any act, omission or state of facts taken or existing on or prior to the date hereof, may have after the date hereof against the Releasees, for, upon or by reason of any matter, cause or thing whatsoever relating to or arising out of the Loan Agreement or the other Loan Documents on or prior to the date hereof through the date hereof. Without limiting the generality of the foregoing, the Borrower waives and affirmatively agrees not to allege or otherwise pursue any defenses, affirmative defenses, counterclaims, claims, causes of action, setoffs or other rights they do, shall or may have as of the date hereof, including the rights to contest: (a) the right of Collateral Agent and each Lender to exercise its rights and remedies described in the Loan Documents; (b) any provision of this Amendment or the Loan Documents; or (c) any conduct of the Lenders or other Releasees relating to or arising out of the Loan Agreement or the other Loan Documents on or prior to the date hereof.

14. Except as expressly set forth herein, the Loan Agreement shall continue in full force and effect without alteration or amendment. This Amendment and the Loan Documents as amended hereby represent the entire agreement about this subject matter and supersede prior negotiations or agreements.

15. This Amendment shall be deemed effective as of the Second Amendment Date upon (a) the due execution and delivery to Collateral Agent of this Amendment by each party hereto, (b) delivery and/payment, as applicable, by Borrower to Collateral Agent and Lenders of: (i) executed Secured Promissory Notes amending and restating the Secured Promissory Notes setting out the Notes outstanding immediately prior to this Amendment becoming effective, (ii) Warrants, in number, form and content acceptable to each Lender, (iii) a completed Perfection Certificate for each Borrower and each of its Subsidiaries, (iv) the facility fee set forth in Section 2.5(a) of the Loan Agreement (as amended by this Amendment) that is due on the Second Amendment Date, and (v) Second Amendment Final Payment (c) Borrower's payment of all Lenders' Expenses incurred through the date hereof, which may be debited (or ACH'd) from any of Borrower's accounts and (d) disbursement of New Term A Loans in accordance with the provisions of the Loan Agreement as amended by this Amendment.

16. This Amendment may be executed in any number of counterparts, each of which shall be deemed an original, and all of which, taken together, shall constitute one and the same instrument.

17. This Amendment and the rights and obligations of the parties hereto shall be governed by and construed in accordance with the laws of the State of California.

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IN WITNESS WHEREOF, the parties hereto have caused this Second Amendment to Loan and Security Agreement to be executed as of the date first set forth above.

BORROWER:

POSEIDA THERAPEUTICS, INC.
VINDICO NANOBIOTECHNOLOGY LLC

By /s/ Mark Gergen
Name: Mark Gergen
Title: CBO & CFO

COLLATERAL AGENT AND LENDER:

OXFORD FINANCE LLC

By /s/ Colette H. Featherly
Name: Colette H. Featherly
Title: Senior Vice President

SCHEDULE 1.1

Lenders and Commitments

Original Term A Loans

Lender	Term Loan Commitment	Commitment Percentage
OXFORD FINANCE LLC	$ 10,000,000.00	100.00%
TOTAL	**$ 10,000,000.00**	**100.00%**

New Term A Loans

Lender	Term Loan Commitment	Commitment Percentage
OXFORD FINANCE LLC	$ 10,000,000.00	100.00%
TOTAL	**$ 10,000,000.00**	**100.00%**

Term B Loans

Lender	Term Loan Commitment	Commitment Percentage
OXFORD FINANCE LLC	$ 10,000,000.00	100.00%
TOTAL	**$ 10,000,000.00**	**100.00%**

Aggregate (all Term Loans)

Lender	Term Loan Commitment	Commitment Percentage
OXFORD FINANCE LLC	$ 30,000,000.00	100.00%
TOTAL	**$ 30,000,000.00**	**100.00%**

Exhibit B

Form of Secured Promissory Notes

[see attached]

SECURED PROMISSORY NOTE
([New] Term [A][B] Loan)

$_____ Dated: [DATE]

FOR VALUE RECEIVED, the undersigned, POSEIDA THERAPEUTICS, INC., a Delaware corporation with offices located at 4242 Campus Point Court, Suite 700, San Diego, California 92121 and VINDICO NANOBIOTECHNOLOGY LLC, a Delaware limited liability company with offices located at 4242 Campus Point Court, Suite 700, San Diego, California 92121 (individually and collectively, jointly and severally, "**Borrower**") HEREBY PROMISES TO PAY to the order of OXFORD FINANCE LLC ("**Lender**") the principal amount of [ ] MILLION DOLLARS ($) or such lesser amount as shall equal the outstanding principal balance of the [New] Term [A][B] Loan made to Borrower by Lender, plus interest on the aggregate unpaid principal amount of such [New] Term [A][B] Loan, at the rates and in accordance with the terms of the Loan and Security Agreement dated July 25, 2017 by and among Borrower, Lender, Oxford Finance LLC, as Collateral Agent, and the other Lenders from time to time party thereto (as amended, restated, supplemented or otherwise modified from time to time, the "**Loan Agreement**"). If not sooner paid, the entire principal amount and all accrued and unpaid interest hereunder shall be due and payable on the Maturity Date as set forth in the Loan Agreement. Any capitalized term not otherwise defined herein shall have the meaning attributed to such term in the Loan Agreement.

Principal, interest and all other amounts due with respect to the [New] Term [A][B] Loan, are payable in lawful money of the United States of America to Lender as set forth in the Loan Agreement and this Secured Promissory Note (this "**Note**"). The principal amount of this Note and the interest rate applicable thereto, and all payments made with respect thereto, shall be recorded by Lender and, prior to any transfer hereof, endorsed on the grid attached hereto which is part of this Note.

The Loan Agreement, among other things, (a) provides for the making of a secured [New] Term [A][B] Loan by Lender to Borrower, and (b) contains provisions for acceleration of the maturity hereof upon the happening of certain stated events.

This Note may not be prepaid except as set forth in Section 2.2 (c) and Section 2.2(d) of the Loan Agreement.

This Note and the obligation of Borrower to repay the unpaid principal amount of the [New] Term [A][B] Loan, interest on the [New] Term [A][B] Loan and all other amounts due Lender under the Loan Agreement is secured under the Loan Agreement.

Presentment for payment, demand, notice of protest and all other demands and notices of any kind in connection with the execution, delivery, performance and enforcement of this Note are hereby waived.

Borrower shall pay all reasonable fees and expenses, including, without limitation, reasonable attorneys' fees and costs, incurred by Lender in the enforcement or attempt to enforce any of Borrower's obligations hereunder not performed when due.

This Note shall be governed by, and construed and interpreted in accordance with, the internal laws of the State of California.

The ownership of an interest in this Note shall be registered on a record of ownership maintained by Lender or its agent. Notwithstanding anything else in this Note to the contrary, the right to the principal of, and stated interest on, this Note may be transferred only if the transfer is registered on such record of ownership and the transferee is identified as the owner of an interest in the obligation. Borrower shall be entitled to treat the registered holder of this Note (as recorded on such record of ownership) as the owner in fact thereof for all purposes and shall not be bound to recognize any equitable or other claim to or interest in this Note on the part of any other person or entity.

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IN WITNESS WHEREOF, Borrower has caused this Note to be duly executed by one of its officers thereunto duly authorized on the date hereof.

BORROWER:

POSEIDA THERAPEUTICS, INC.
VINDICO NANOBIOTECHNOLOGY LLC

By _____
Name: _____
Title: _____

LOAN INTEREST RATE AND PAYMENTS OF PRINCIPAL

Date	Principal Amount	Interest Rate	Scheduled Payment Amount	Notation By

Exhibit B

Form of Secured Promissory Notes

[see attached]

AMENDED AND RESTATED SECURED PROMISSORY NOTE
(Original Term A Loan)

This Note amends and restates in its entirety that certain Amended and Restated Secured Promissory Note issued by Borrower to Lender on May 15, 2017 in the original principal amount of [_____].

$_____ Dated: August [ ], 2018

FOR VALUE RECEIVED, the undersigned, POSEIDA THERAPEUTICS, INC., a Delaware corporation with offices located at 4242 Campus Point Court, Suite 700, San Diego, California 92121 and VINDICO NANOBIOTECHNOLOGY LLC, a Delaware limited liability company with offices located at 4242 Campus Point Court, Suite 700, San Diego, California 92121 (individually and collectively, jointly and severally, "**Borrower**") HEREBY PROMISES TO PAY to the order of OXFORD FINANCE LLC ("**Lender**") the principal amount of [_____] MILLION DOLLARS ($_____) or such lesser amount as shall equal the outstanding principal balance of the Original Term A Loan made to Borrower by Lender, plus interest on the aggregate unpaid principal amount of such Original Term A Loan, at the rates and in accordance with the terms of the Loan and Security Agreement dated July 25, 2017 by and among Borrower, Lender, Oxford Finance LLC, as Collateral Agent, and the other Lenders from time to time party thereto (as amended, restated, supplemented or otherwise modified from time to time, the "**Loan Agreement**"). If not sooner paid, the entire principal amount and all accrued and unpaid interest hereunder shall be due and payable on the Maturity Date as set forth in the Loan Agreement. Any capitalized term not otherwise defined herein shall have the meaning attributed to such term in the Loan Agreement.

Principal, interest and all other amounts due with respect to the Original Term A Loan, are payable in lawful money of the United States of America to Lender as set forth in the Loan Agreement and this Secured Promissory Note (this "**Note**"). The principal amount of this Note and the interest rate applicable thereto, and all payments made with respect thereto, shall be recorded by Lender and, prior to any transfer hereof, endorsed on the grid attached hereto which is part of this Note.

The Loan Agreement, among other things, (a) provides for the making of a secured Original Term A Loan by Lender to Borrower, and (b) contains provisions for acceleration of the maturity hereof upon the happening of certain stated events.

This Note may not be prepaid except as set forth in Section 2.2 (c) and Section 2.2(d) of the Loan Agreement.

This Note and the obligation of Borrower to repay the unpaid principal amount of the Original Term A Loan, interest on the Original Term A Loan and all other amounts due Lender under the Loan Agreement is secured under the Loan Agreement.

Presentment for payment, demand, notice of protest and all other demands and notices of any kind in connection with the execution, delivery, performance and enforcement of this Note are hereby waived.

Borrower shall pay all reasonable fees and expenses, including, without limitation, reasonable attorneys' fees and costs, incurred by Lender in the enforcement or attempt to enforce any of Borrower's obligations hereunder not performed when due.

This Note shall be governed by, and construed and interpreted in accordance with, the internal laws of the State of California.

The ownership of an interest in this Note shall be registered on a record of ownership maintained by Lender or its agent. Notwithstanding anything else in this Note to the contrary, the right to the principal of, and stated interest on, this Note may be transferred only if the transfer is registered on such record of ownership and the transferee is identified as the owner of an interest in the obligation. Borrower shall be entitled to treat the registered holder of this Note (as recorded on such record of ownership) as the owner in fact thereof for all purposes and shall

not be bound to recognize any equitable or other claim to or interest in this Note on the part of any other person or entity.

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IN WITNESS WHEREOF, Borrower has caused this Note to be duly executed by one of its officers thereunto duly authorized on the date hereof.

BORROWER:

POSEIDA THERAPEUTICS, INC.
VINDICO NANOBIOTECHNOLOGY LLC

By _____
Name: _____
Title: _____

LOAN INTEREST RATE AND PAYMENTS OF PRINCIPAL

Date	Principal Amount	Interest Rate	Scheduled Payment Amount	Notation By

Exhibit C

Amortization Table

[see attached]

THIRD AMENDMENT TO LOAN AND SECURITY AGREEMENT

THIS THIRD AMENDMENT to Loan and Security Agreement (this "**Amendment**") is entered into as of January 3, 2019, by and among OXFORD FINANCE LLC, a Delaware limited liability company with an office located at 133 North Fairfax Street, Alexandria, Virginia 22314 (in its individual capacity, "**Oxford**"; and in its capacity as Collateral Agent, "**Collateral Agent**"), the Lenders listed on Schedule 1.1 thereof from time to time including Oxford in its capacity as a Lender (each a "**Lender**" and collectively, the "**Lenders**"), and POSEIDA THERAPEUTICS, INC., a Delaware corporation with offices located at 4242 Campus Point Court, Suite 700, San Diego, California 92121 and VINDICO NANOBIOTECHNOLOGY LLC, a Delaware limited liability company and a wholly owned subsidiary of Parent with offices located at 4242 Campus Point Court, Suite 700, San Diego, California 92121 individually and collectively, jointly and severally, "**Borrower**").

WHEREAS, Collateral Agent, Borrower and the Lenders party thereto from time to time have entered into that certain Loan and Security Agreement, dated as of July 25, 2017 (as amended, restated, supplemented or otherwise modified from time to time, the "**Loan Agreement**") pursuant to which the Lenders have provided to Borrower certain loans in accordance with the terms and conditions thereof; and

WHEREAS, Borrower, Lenders and Collateral Agent desire to amend certain provisions of the Loan Agreement as provided herein and subject to the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the promises, covenants and agreements contained herein, and other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, Borrower, Lenders and Collateral Agent hereby agree as follows:

1. **Definitions.** Capitalized terms used herein but not otherwise defined shall have the respective meanings given to them in the Loan Agreement.

2. Section 2.2(b) of the Loan Agreement is hereby amended and restated in its entirety as follows:

(b) Repayment. Borrower shall make monthly payments of interest only commencing on the first (1st) Payment Date following the Funding Date of each Term Loan, and continuing on the Payment Date of each successive month thereafter through and including the Payment Date immediately preceding the Amortization Date. Borrower agrees to pay, on the Funding Date of each Term Loan, any initial partial monthly interest payment otherwise due for the period between the Funding Date of such Term Loan and the first Payment Date thereof. Commencing on the Amortization Date, and continuing on the Payment Date of each month thereafter, Borrower shall make consecutive equal monthly payments of principal, together with applicable interest, in arrears, to each Lender, as calculated by Collateral Agent (which calculations shall be deemed correct absent manifest error) based upon: (1) the amount of such Lender's Term Loan, (2) the effective rate of interest, as determined in Section 2.3(a), and (3) a repayment schedule equal to (i) thirty-six (36) months, if the Term B Loans are not made hereunder and (ii) thirty (30) months, if the Term B Loans are made hereunder. All unpaid principal and accrued and unpaid interest with respect to each Term Loan is due and payable in full on the Maturity Date. Each Term Loan may only be prepaid in accordance with Sections 2.2(c) and 2.2(d).

3. Section 2.5 of the Loan Agreement is hereby amended by deleting the word "and" immediately following Section 2.5(d), replacing ";" at the end of Section 2.5(e) with "; and" and adding Section 2.5(f) thereto as follows:

(f) Non-Utilization Fee. If the Second Draw Period commences and Borrower fails to draw the full amount of the Term B Loans in accordance with the terms hereof, a fully earned and non-refundable non-utilization fee in the amount of One Hundred Thousand Dollars ($100,000.00) which shall become due and payable upon the earliest of: (i) the Maturity Date, (ii) the acceleration of any Term Loan, (iii) the prepayment of a Term Loan pursuant to Section 2.2(c) or (d), or (iv) the date that Second Draw Period ends.

4. Section 13.1 of the Loan Agreement is hereby amended by amending and restating the following definitions therein as set forth below:

"**Amortization Date**" is (i) April 1, 2020, if the Term B Loans are not made hereunder and (ii) October 1, 2020, if the Term B Loans are made hereunder.

"**Second Draw Period**" is the period commencing on the later of (i) the date of the occurrence of the Positive Data Event and (ii) October 1, 2018 and ending on the earliest of (i) February 15, 2019 and (ii) the occurrence of an Event of Default; provided, however, that the Second Draw Period shall not commence if on the date that it would have otherwise commenced an Event of Default has occurred and is continuing.

5. Limitation of Amendment.

   a. The amendments set forth in Sections 2 through 4 above are effective for the purposes set forth herein and shall be limited precisely as written and shall not be deemed to (a) be a consent to any amendment, waiver or modification of any other term or condition of any Loan Document as amended hereby, or (b) otherwise prejudice any right, remedy or obligation which Lenders or Borrower may now have or may have in the future under or in connection with any Loan Document, as amended hereby.

   b. This Amendment shall be construed in connection with and as part of the Loan Documents and all terms, conditions, representations, warranties, covenants and agreements set forth in the Loan Documents, except as herein amended, are hereby ratified and confirmed and shall remain in full force and effect.

6. To induce Collateral Agent and Lenders to enter into this Amendment, Borrower hereby represents and warrants to Collateral Agent and Lenders as follows:

   a. Immediately after giving effect to this Amendment (a) the representations and warranties contained in the Loan Documents are true, accurate and complete in all material respects as of the date hereof (except to the extent such representations and warranties relate to an earlier date, in which case they are true and correct as of such date), and (b) no Event of Default has occurred and is continuing;

   b. Borrower has the power and due authority to execute and deliver this Amendment and to perform its obligations under the Loan Agreement, as amended by this Amendment;

   c. The organizational documents of Borrower delivered to Collateral Agent on the Effective Date, and updated pursuant to subsequent deliveries by the Borrower to the Collateral Agent, remain true, accurate and complete and have not been amended, supplemented or restated and are and continue to be in full force and effect;

   d. The execution and delivery by Borrower of this Amendment and the performance by Borrower of its obligations under the Loan Agreement, as amended by this Amendment, have been duly authorized;

   e. The execution and delivery by Borrower of this Amendment and the performance by Borrower of its obligations under the Loan Agreement, as amended by this Amendment, do not and will not contravene (i) any law or regulation binding on or affecting Borrower, (ii) any contractual restriction with a Person binding on Borrower, (iii) any order, judgment or decree of any court or other governmental or public body or authority, or subdivision thereof, binding on Borrower, or (iv) the organizational documents of Borrower;

   f. The execution and delivery by Borrower of this Amendment and the performance by Borrower of its obligations under the Loan Agreement, as amended by this Amendment, do not require any order, consent, approval, license, authorization or validation of, or filing, recording or registration

with, or exemption by any governmental or public body or authority, or subdivision thereof, binding on Borrower, except as already has been obtained or made; and

g. This Amendment has been duly executed and delivered by Borrower and is the binding obligation of Borrower, enforceable against Borrower in accordance with its terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, liquidation, moratorium or other similar laws of general application and equitable principles relating to or affecting creditors' rights.

7. The Borrower hereby remises, releases, acquits, satisfies and forever discharges the Lenders and Collateral Agent, their agents, employees, officers, directors, predecessors, attorneys and all others acting or purporting to act on behalf of or at the direction of the Lenders and Collateral Agent **(**"**Releasees**"), of and from any and all manner of actions, causes of action, suit, debts, accounts, covenants, contracts, controversies, agreements, variances, damages, judgments, claims and demands whatsoever, in law or in equity, which any of such parties ever had, now has or, to the extent arising from or in connection with any act, omission or state of facts taken or existing on or prior to the date hereof, may have after the date hereof against the Releasees, for, upon or by reason of any matter, cause or thing whatsoever relating to or arising out of the Loan Agreement or the other Loan Documents on or prior to the date hereof through the date hereof. Without limiting the generality of the foregoing, the Borrower waives and affirmatively agrees not to allege or otherwise pursue any defenses, affirmative defenses, counterclaims, claims, causes of action, setoffs or other rights they do, shall or may have as of the date hereof, including the rights to contest: (a) the right of Collateral Agent and each Lender to exercise its rights and remedies described in the Loan Documents; (b) any provision of this Amendment or the Loan Documents; or (c) any conduct of the Lenders or other Releasees relating to or arising out of the Loan Agreement or the other Loan Documents on or prior to the date hereof.

8. Except as expressly set forth herein, the Loan Agreement shall continue in full force and effect without alteration or amendment. This Amendment and the Loan Documents as amended hereby represent the entire agreement about this subject matter and supersede prior negotiations or agreements.

9. This Amendment shall be deemed effective as of the date first set forth above upon (a) the due execution and delivery to Collateral Agent of this Amendment by each party hereto and (b) Borrower's payment of all Lenders' Expenses incurred through the date hereof, which may be debited (or ACH'd) from any of Borrower's accounts.

10. This Amendment may be executed in any number of counterparts, each of which shall be deemed an original, and all of which, taken together, shall constitute one and the same instrument.

11. This Amendment and the rights and obligations of the parties hereto shall be governed by and construed in accordance with the laws of the State of California.

[*Balance of Page Intentionally Left Blank*]

IN WITNESS WHEREOF, the parties hereto have caused this Third Amendment to Loan and Security Agreement to be executed as of the date first set forth above.

BORROWER:

POSEIDA THERAPEUTICS, INC.
VINDICO NANOBIOTECHNOLOGY LLC

By: /s/ Mark Gergen
Name: Mark Gergen
Title: CFO & CBO

COLLATERAL AGENT AND LENDER:

OXFORD FINANCE LLC

By: /s/ Colette H. Featherly
Name: Colette H. Featherly
Title: Senior Vice President

FOURTH AMENDMENT TO LOAN AND SECURITY AGREEMENT

THIS FOURTH AMENDMENT to Loan and Security Agreement (this "**Amendment**") is entered into as of June 24, 2020, by and among OXFORD FINANCE LLC, a Delaware limited liability company with an office located at 133 North Fairfax Street, Alexandria, Virginia 22314 (in its individual capacity, "**Oxford**"; and in its capacity as Collateral Agent, "**Collateral Agent**"), the Lenders listed on Schedule 1.1 thereof from time to time including Oxford in its capacity as a Lender (each a "**Lender**" and collectively, the "**Lenders**"), and POSEIDA THERAPEUTICS, INC., a Delaware corporation with offices located at 9390 Towne Centre Drive, Suite 200, San Diego, California 92121 and VINDICO NANOBIOTECHNOLOGY LLC, a Delaware limited liability company and a wholly owned subsidiary of Parent with offices located at 9390 Towne Centre Drive, Suite 200, San Diego, California 92121 individually and collectively, jointly and severally, "**Borrower**").

WHEREAS, Collateral Agent, Borrower and the Lenders party thereto from time to time have entered into that certain Loan and Security Agreement, dated as of July 25, 2017 (as amended, restated, supplemented or otherwise modified from time to time, the "**Loan Agreement**") pursuant to which the Lenders have provided to Borrower certain loans in accordance with the terms and conditions thereof; and

WHEREAS, Borrower, Lenders and Collateral Agent desire to amend certain provisions of the Loan Agreement as provided herein and subject to the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the promises, covenants and agreements contained herein, and other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, Borrower, Lenders and Collateral Agent hereby agree as follows:

1. **Definitions.** Capitalized terms used herein but not otherwise defined shall have the respective meanings given to them in the Loan Agreement.

2. Section 2.2(b) of the Loan Agreement is hereby amended and restated in its entirety as follows:

(b) Repayment. Borrower shall make monthly payments of interest only commencing on the first (1st) Payment Date following the Funding Date of each Term Loan, and continuing on the Payment Date of each successive month thereafter through and including the Payment Date immediately preceding the Amortization Date. Borrower agrees to pay, on the Funding Date of each Term Loan, any initial partial monthly interest payment otherwise due for the period between the Funding Date of such Term Loan and the first Payment Date thereof. Commencing on the Amortization Date, and continuing on the Payment Date of each month thereafter, Borrower shall make consecutive equal monthly payments of principal, together with applicable interest, in arrears, to each Lender, as calculated by Collateral Agent (which calculations shall be deemed correct absent manifest error) based upon: (1) the amount of such Lender's Term Loan, (2) the effective rate of interest, as determined in Section 2.3(a), and (3) a repayment schedule equal to thirty (30) months. All unpaid principal and accrued and unpaid interest with respect to each Term Loan is due and payable in full on the Maturity Date. Each Term Loan may only be prepaid in accordance with Sections 2.2(c) and 2.2(d).

3. Section 2.5 of the Loan Agreement is hereby amended by deleting the word "and" immediately following Section 2.5(e), replacing "." at the end of Section 2.5(f) with "; and" and adding Section 2.5(g) thereto as follows:

(g) Fourth Amendment Facility Fee. A fully earned, non-refundable fourth amendment facility fee of Three Hundred Twenty Five Thousand Dollars ($325,000.00) to be shared between the Lenders pursuant to their respective Commitment Percentages, payable on the Fourth Amendment Date.

4. Section 13.1 of the Loan Agreement is hereby amended by amending and restating the following definitions therein as set forth below:

"**Amortization Date**" is January 1, 2022.

"**Maturity Date**" is June 1, 2024.

5. Section 13.1 of the Loan Agreement is hereby further amended by adding the following definition thereto in alphabetical order:

"**Fourth Amendment Date**" is June 24, 2020.

6. The Amortization Table attached to the Disbursement Letter dated as of the Effective Date is hereby amended and restated in its entirety as set forth on Exhibit A hereto.

7. The Amortization Table attached to the Disbursement Letter dated as of August 13, 2018 is hereby amended and restated in its entirety as set forth on Exhibit B hereto.

8. The Amortization Table attached to the Disbursement Letter dated as of February 11, 2019 is hereby amended and restated in its entirety as set forth on Exhibit C hereto.

9. Limitation of Amendment.

    a. The amendments set forth in Sections 2 through 8 above are effective for the purposes set forth herein and shall be limited precisely as written and shall not be deemed to (a) be a consent to any amendment, waiver or modification of any other term or condition of any Loan Document as amended hereby, or (b) otherwise prejudice any right, remedy or obligation which Lenders or Borrower may now have or may have in the future under or in connection with any Loan Document, as amended hereby.

    b. This Amendment shall be construed in connection with and as part of the Loan Documents and all terms, conditions, representations, warranties, covenants and agreements set forth in the Loan Documents, except as herein amended, are hereby ratified and confirmed and shall remain in full force and effect.

10. To induce Collateral Agent and Lenders to enter into this Amendment, Borrower hereby represents and warrants to Collateral Agent and Lenders as follows:

    a. Immediately after giving effect to this Amendment (a) the representations and warranties contained in the Loan Documents are true, accurate and complete in all material respects as of the date hereof (except to the extent such representations and warranties relate to an earlier date, in which case they are true and correct as of such date), and (b) no Event of Default has occurred and is continuing;

    b. Borrower has the power and due authority to execute and deliver this Amendment and to perform its obligations under the Loan Agreement, as amended by this Amendment;

    c. The organizational documents of Borrower delivered to Collateral Agent on the Effective Date, and updated pursuant to subsequent deliveries by the Borrower to the Collateral Agent, remain true, accurate and complete and have not been amended, supplemented or restated and are and continue to be in full force and effect;

    d. The execution and delivery by Borrower of this Amendment and the performance by Borrower of its obligations under the Loan Agreement, as amended by this Amendment, have been duly authorized;

e. The execution and delivery by Borrower of this Amendment and the performance by Borrower of its obligations under the Loan Agreement, as amended by this Amendment, do not and will not contravene (i) any law or regulation binding on or affecting Borrower, (ii) any contractual restriction with a Person binding on Borrower, (iii) any order, judgment or decree of any court or other governmental or public body or authority, or subdivision thereof, binding on Borrower, or (iv) the organizational documents of Borrower;

f. The execution and delivery by Borrower of this Amendment and the performance by Borrower of its obligations under the Loan Agreement, as amended by this Amendment, do not require any order, consent, approval, license, authorization or validation of, or filing, recording or registration with, or exemption by any governmental or public body or authority, or subdivision thereof, binding on Borrower, except as already has been obtained or made; and

g. This Amendment has been duly executed and delivered by Borrower and is the binding obligation of Borrower, enforceable against Borrower in accordance with its terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, liquidation, moratorium or other similar laws of general application and equitable principles relating to or affecting creditors' rights.

11. The Borrower hereby remises, releases, acquits, satisfies and forever discharges the Lenders and Collateral Agent, their agents, employees, officers, directors, predecessors, attorneys and all others acting or purporting to act on behalf of or at the direction of the Lenders and Collateral Agent **(**"**Releasees**"), of and from any and all manner of actions, causes of action, suit, debts, accounts, covenants, contracts, controversies, agreements, variances, damages, judgments, claims and demands whatsoever, in law or in equity, which any of such parties ever had, now has or, to the extent arising from or in connection with any act, omission or state of facts taken or existing on or prior to the date hereof, may have after the date hereof against the Releasees, for, upon or by reason of any matter, cause or thing whatsoever relating to or arising out of the Loan Agreement or the other Loan Documents on or prior to the date hereof through the date hereof. Without limiting the generality of the foregoing, the Borrower waives and affirmatively agrees not to allege or otherwise pursue any defenses, affirmative defenses, counterclaims, claims, causes of action, setoffs or other rights they do, shall or may have as of the date hereof, including the rights to contest: (a) the right of Collateral Agent and each Lender to exercise its rights and remedies described in the Loan Documents; (b) any provision of this Amendment or the Loan Documents; or (c) any conduct of the Lenders or other Releasees relating to or arising out of the Loan Agreement or the other Loan Documents on or prior to the date hereof.

12. Except as expressly set forth herein, the Loan Agreement shall continue in full force and effect without alteration or amendment. This Amendment and the Loan Documents as amended hereby represent the entire agreement about this subject matter and supersede prior negotiations or agreements.

13. This Amendment shall be deemed effective as of the date first set forth above upon (a) the due execution and delivery to Collateral Agent of this Amendment by each party hereto, (b) Borrower's payment of all Lenders' Expenses incurred through the date hereof, which may be debited (or ACH'd) from any of Borrower's accounts and (c) receipt by Borrower on or after May 1, 2020 and on or before the Fourth Amendment Date of unrestricted net cash proceeds of at least Seventy Million Dollars ($70,000,000.00) from the sale and issuance of shares of Borrower's Series D Preferred Stock.

14. This Amendment may be executed in any number of counterparts, each of which shall be deemed an original, and all of which, taken together, shall constitute one and the same instrument.

15. This Amendment and the rights and obligations of the parties hereto shall be governed by and construed in accordance with the laws of the State of California.

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IN WITNESS WHEREOF, the parties hereto have caused this Fourth Amendment to Loan and Security Agreement to be executed as of the date first set forth above.

BORROWER:

POSEIDA THERAPEUTICS, INC.
VINDICO NANOBIOTECHNOLOGY LLC

By /s/ Mark J. Gergen
Name: Mark J. Gergen
Title: CFO + CBO

COLLATERAL AGENT AND LENDER:

OXFORD FINANCE LLC

By /s/ Colette H. Featherly
Name: Colette H. Featherly
Title: Senior Vice President

Exhibit A

Amortization Table to the Disbursement Letter dated as of the Effective Date

Please see attached.

Exhibit B

Amortization Table to the Disbursement Letter dated as of August 13, 2018

Please see attached.

Exhibit C

Amortization Table to the Disbursement Letter dated as of February 11, 2019

Please see attached.

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the use in this Registration Statement on Form S-1 (No. 333-239321) of Poseida Therapeutics, Inc. of our report dated April 17, 2020, except for the effects of the reverse stock split discussed in Note 1 to the consolidated financial statements, as to which the date is July 6, 2020 relating to the financial statements of Poseida Therapeutics, Inc., which appears in this Registration Statement. We also consent to the reference to us under the heading “Experts” in such Registration Statement.

/s/ PricewaterhouseCoopers LLP

San Diego, California
July 6, 2020