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**As confidentially submitted to the Securities and Exchange Commission on May 27, 2020.**
**This Amendment No. 1 to the draft registration statement has not been publicly filed with the Securities and Exchange Commission and all information herein remains strictly confidential.**

**Registration No. 333-**

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

# 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)**

**Eric Ostertag, M.D., Ph.D.**
**Chief Executive Officer**
**Poseida Therapeutics, Inc.**
**9390 Towne Centre Drive, Suite 200**
**San Diego, CA 92121**
**(858) 779-3100**
**(Name, address, including zip code, and telephone number, including area code, of agent for service)**

***Copies to:***

| Sean M. Clayton<br>Charles S. Kim<br>Kenneth J. Krisko<br>Cooley LLP<br>4401 Eastgate Mall<br>San Diego, CA 92121<br>(858) 550-6000 | Mark J. Gergen<br>Chief Business and Financial Officer<br>Poseida Therapeutics, Inc.<br>9390 Towne Centre Drive, Suite 200<br>San Diego, CA 92121<br>(858) 779-3100 | Cheston J. Larson<br>Matthew T. Bush<br>Latham & Watkins LLP<br>12670 High Bluff Drive<br>San Diego, CA 92130<br>(858) 523-5400 |
|---|---|---|

**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 | Proposed Maximum Aggregate Offering Price(1)(2) | Amount of Registration Fee |
|---|---|---|
| Common Stock, $0.0001 par value per share | $ | $ |

(1) Includes the aggregate offering price of additional 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(o) under the Securities Act of 1933, as amended.

**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 , 2020

**PROSPECTUS**

# Shares


# Common Stock

This is an initial public offering of shares of common stock of Poseida Therapeutics, Inc. We are selling 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 $ and $ 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 shares of common stock, the underwriters have the option to purchase up to an additional 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:***

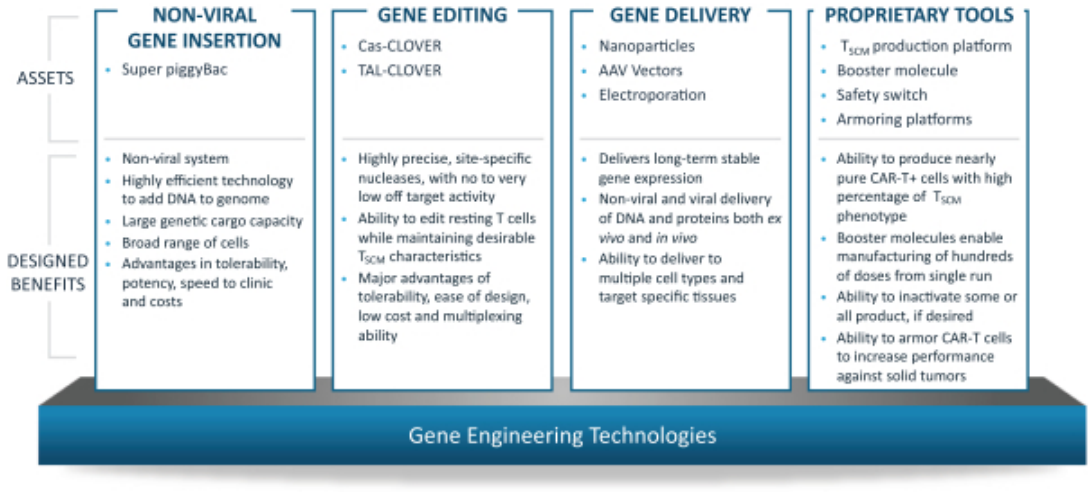
*Cell Therapy*. CAR-T treatments have faced both cost and safety challenges. Our engineering of proprietary booster molecules allows us to generate hundreds of doses from a single manufacturing run in our fully allogeneic CAR-T program. We believe this will lead to a significant reduction in costs to 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.

Through March 31, 2020, we have raised approximately $225 million from our veteran group of strategic and life sciences focused institutional investors who support our mission. Our key investors include Aisling Capital, Boxer Capital, Longitude Capital, Malin Corporation, Millennium Capital, Novartis Pharma AG, Pentwater Capital, Perceptive Advisors 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 | shares. |
| Option to purchase additional shares | We have granted the underwriters an option exercisable for a period of 30 days to purchase up to additional shares of our common stock. |
| Common stock to be outstanding immediately after this offering | shares (or 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. |
| Proposed Nasdaq Global Select Market symbol | "PSTX" |

The number of shares of common stock to be outstanding after this offering is based on 49,608,214 shares of common stock outstanding as of March 31, 2020 (including preferred stock on an as-coverted basis), and excludes the following:

- 4,805,214 shares of common stock issuable upon the exercise of options outstanding as of March 31, 2020, with a weighted-average exercise price of $7.52 per share;
- 116,618 shares of common stock issuable upon the exercise of outstanding warrants as of March 31, 2020, with an exercise price of $3.43 per share;
- 34,424 shares of common stock issuable upon the exercise of outstanding warrants as of March 31, 2020, with an exercise price of $5.81 per share;
- 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;" and
- 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."

Unless otherwise indicated, all information in this prospectus assumes:

- the automatic conversion of all outstanding shares of our preferred stock into an aggregate of 32,934,785 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 151,042 shares of our common stock;
- no exercise of the outstanding options and warrants described above;
- 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 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 | $ (2.92) | $ (5.50) | $ (0.87) | $ (0.58) |
| Weighted-average shares of common stock outstanding, basic and diluted | 15,193,494 | 15,735,244 | 15,326,485 | 16,613,347 |
| Pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)(1) | | $ (1.94) | | $ (1.73) |
| Pro forma weighted-average shares of common stock outstanding, basic and diluted (unaudited)(1) | | 44,804,787 | | 49,548,132 |
| 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 | $ | $ |
| Working capital(1) | 68,744 | | |
| Total assets | 156,301 | | |
| Term debt | 29,227 | | |
| Deferred CIRM grant liability | 23,756 | | |
| Warrant liability | 1,251 | | |
| Convertible preferred stock | 222,173 | | |
| Total stockholders' (deficit) equity | (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.

(2) Gives effect to (i) the automatic conversion of all outstanding shares of our preferred stock into an aggregate of 32,934,785 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 (ii) the automatic conversion of all outstanding warrants to purchase shares of preferred stock into warrants to purchase up to an aggregate of 151,042 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 shares of our common stock in this offering at the assumed initial public offering price of $ 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 $ 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 $ , 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 $ 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 $ , 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, will enable us to fund our operations through at least the next 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 March 31, 2020, our executive officers, directors, five percent stockholders and their affiliates beneficially own approximately 64.0% of our voting stock and, upon closing of this offering, that same group will beneficially own approximately % 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 25.4% of our voting stock as of March 31, 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 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 $ per share as of March 31, 2020, based on an assumed initial public offering price of our common stock of $ 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) % 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, (2) shares of common stock, or (3) 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 $ million, or $ 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 $ 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 $ per share, would increase (decrease) the net proceeds to us from this offering by $ 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 $ 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 $ million for our ongoing clinical development of P-BCMA-101 for relapsed/refractory multiple myeloma, including clinical trial costs and manufacturing expenses;
- approximately $ million for our ongoing clinical development of P-PSMA-101 for mCRPC, including clinical trial costs and manufacturing expenses;
- approximately $ 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 months from the date of this offering, including through . 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 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 automatic conversion of all outstanding shares of our preferred stock into an aggregate of 32,934,785 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, (2) the automatic conversion of all outstanding warrants to purchase shares of preferred stock into warrants to purchase up to an aggregate of 151,042 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 (3) 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 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 $ 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 | $ | $ |
| Term debt–short–term | $ 6,000 | $ | $ |
| Term debt–long–term | $ 23,227 | $ | $ |
| Warrant liability | $ 1,251 | $ | $ |
| 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, 16,673,429 shares issued and outstanding, actual; shares authorized, 49,608,214 shares issued and outstanding, pro forma; shares authorized, shares issued and outstanding, pro forma as adjusted | 2 | | |
| Additional paid-in capital | 4,381 | | |
| Accumulated other comprehensive income | 130 | | |
| Accumulated deficit | (180,894) | | |
| Total stockholders' equity (deficit) | (176,381) | | |
| Total capitalization | $ 76,270 | $ | $ |

(1) Gives effect to (i) the automatic conversion of all outstanding shares of our preferred stock into an aggregate of 32,934,785 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 (ii) the automatic conversion of all outstanding warrants to purchase shares of preferred stock into warrants to purchase up to an aggregate of 151,042 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 $ 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 $ , 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 $ , 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:

- 4,805,214 shares of common stock issuable upon the exercise of options outstanding as of March 31, 2020, with a weighted-average exercise price of $7.52 per share;
- 116,618 shares of common stock issuable upon the exercise of outstanding warrants as of March 31, 2020, with an exercise price of $3.43 per share;

- 34,424 shares of common stock issuable upon the exercise of an outstanding warrant as of March 31, 2020, with an exercise price of $5.81 per share;

- 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”; and

- 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”.

## 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 $10.91 per share.

Our pro forma net tangible book value as of March 31, 2020, was approximately $ million, or $ per share, after giving effect to (1) the automatic conversion of all outstanding shares of our preferred stock into an aggregate of 32,934,785 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 (2) the automatic conversion of all outstanding warrants to purchase shares of preferred stock into warrants to purchase up to an aggregate of 151,042 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 shares of common stock in this offering at an assumed initial public offering price of $ 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 $ million, or $ per share. This represents an immediate increase in pro forma net tangible book value of $ per share to our existing stockholders and an immediate dilution of $ 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 | | $ |
| Historical net tangible book deficit per share at March 31, 2020 | $ (10.91) | |
| Pro forma increase in historical net tangible book value per share attributable to conversion of all outstanding shares of preferred stock | | |
| Pro forma net tangible book value per share at March 31, 2020, before giving effect to this offering | | |
| Increase in pro forma net tangible book value per share attributable to investors participating in this offering | | |
| Pro forma as adjusted net tangible book value per share after this offering | | |
| Dilution per share to new investors participating in this offering | | $ |

Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share would increase (decrease) the pro forma as adjusted net tangible book value per share after this offering by approximately $ , and dilution in pro forma net tangible book value per share to new investors by approximately $ , 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 $ and decrease the dilution to

investors participating in this offering by approximately $ 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 $ and increase the dilution to investors participating in this offering by approximately $ 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 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 $ per share, the increase in pro forma as adjusted net tangible book value per share to existing stockholders would be $ per share and the dilution per share to new investors would be $ per share, in each case assuming an initial public offering price of $ 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 $ 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 | | % | $ | % | $ |
| Investors participating in this offering | | | | | $ |
| Total | | 100.0% | $ | 100.0% | |

The foregoing tables and calculations exclude:

- 4,805,214 shares of common stock issuable upon the exercise of options outstanding as of March 31, 2020, with a weighted-average exercise price of $7.52 per share;
- 116,618 shares of common stock issuable upon the exercise of outstanding warrants as of March 31, 2020, with an exercise price of $3.43 per share;
- 34,424 shares of common stock issuable upon the exercise of an outstanding warrant as of March 31, 2020, with an exercise price of $5.81 per share;
- 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”; and

- 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”.

## 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 | $ (2.92) | $ (5.50) | $ (0.87) | $ (1.73) |
| Weighted-average shares of common stock outstanding, basic and diluted | 15,193,494 | 15,735,244 | 15,326,485 | 16,613,347 |
| Pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)(1) | | $ (1.94) | | $ (0.58) |
| Pro forma weighted-average shares of common stock outstanding, basic and diluted (unaudited)(1) | | 44,804,787 | | 49,548,132 |
| 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 $224.8 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.

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 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 437,115 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 $1.51 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 issued 1,080,088 shares of common stock, valued at $10.6 million to the former Vindico shareholders. 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) | 2,259 | 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 $224.8 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.

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 Used in 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  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. 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 , 2020 was approximately $ million, based on the estimated public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, of which approximately $ million related to vested options and approximately $ 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 $9.81. The estimated number of shares issuable was 1.1 million as of March 31, 2019. In July 2019, we achieved the milestone and issued 1,080,088 shares of common stock to the former Vindico shareholders. 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 $9.81 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:***

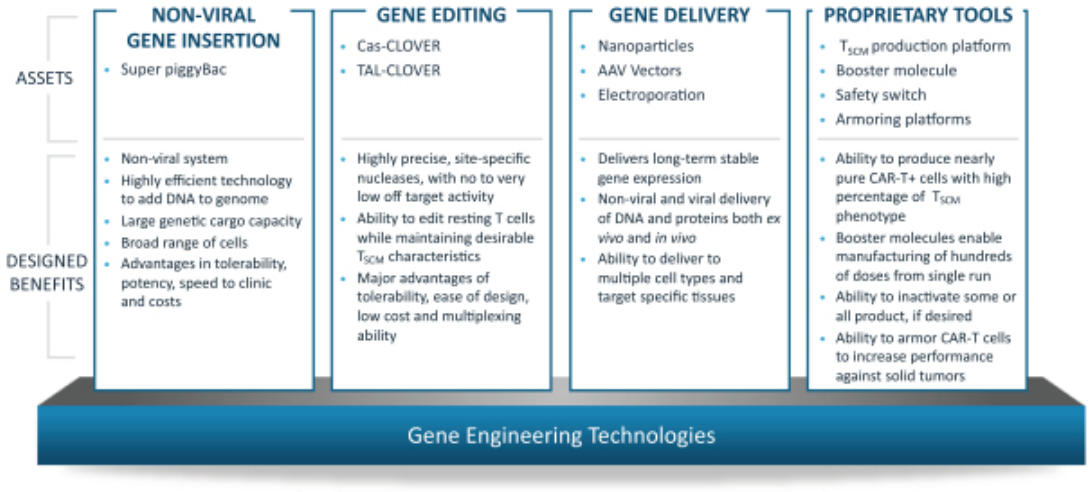
*Cell Therapy*. CAR-T treatments have faced both cost and safety challenges. Our engineering of proprietary booster molecules allows us to generate hundreds of doses from a single manufacturing run in our fully allogeneic CAR-T program. We believe this will lead to a significant reduction in costs to 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.

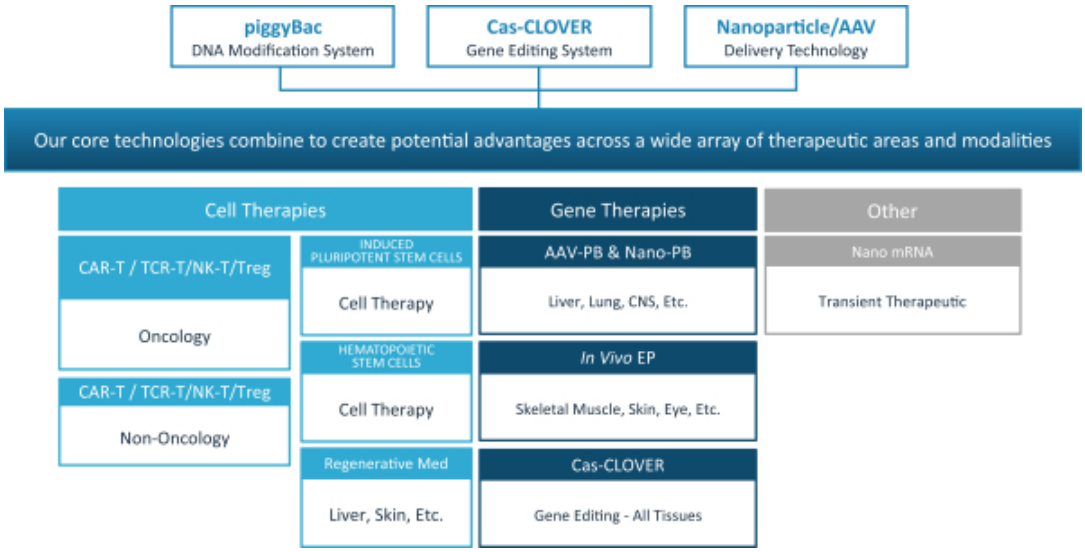
  – *Armoring platforms*. We can use our genetic engineering tools to make other modifications to our product candidates to potentially improve their performance against solid tumors, an approach commonly referred to as “armoring”. We have several types of armoring platforms:

    ¡ *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.

Through March 31, 2020, we have raised approximately $225 million from our veteran group of strategic and life sciences focused institutional investors who support our mission. Our key investors include Aisling Capital, Boxer Capital, Longitude Capital, Malin Corporation, Millennium Capital, Novartis Pharma AG, Pentwater Capital, Perceptive Advisors 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*

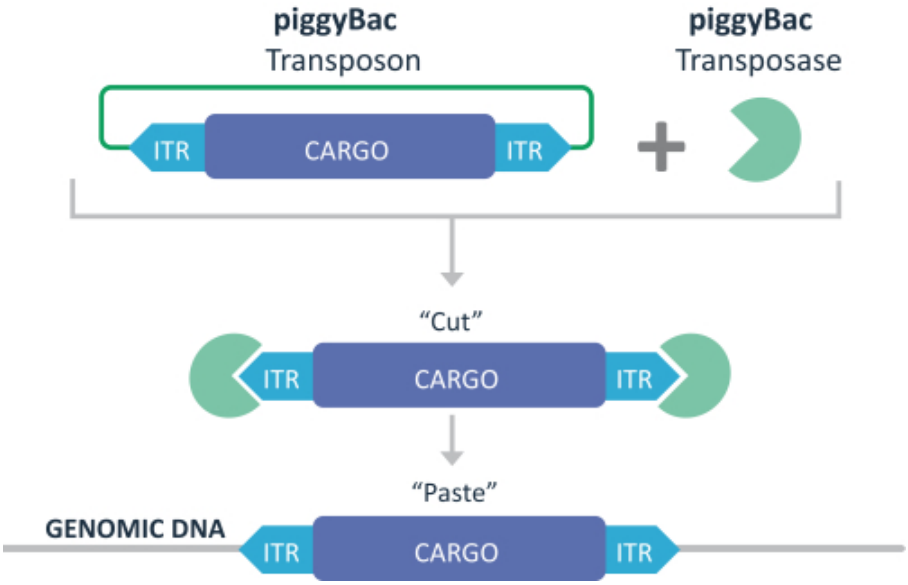
  - Booster molecules overcome the "Allo Tax", which commonly refers to the suboptimal manufacturing yield and characteristics of CAR-T products due to genetic modification, by enabling improved expansion of genetically modified T cells
  - Enables expansion of T cells without affecting their desirable $T_{SCM}$ 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.

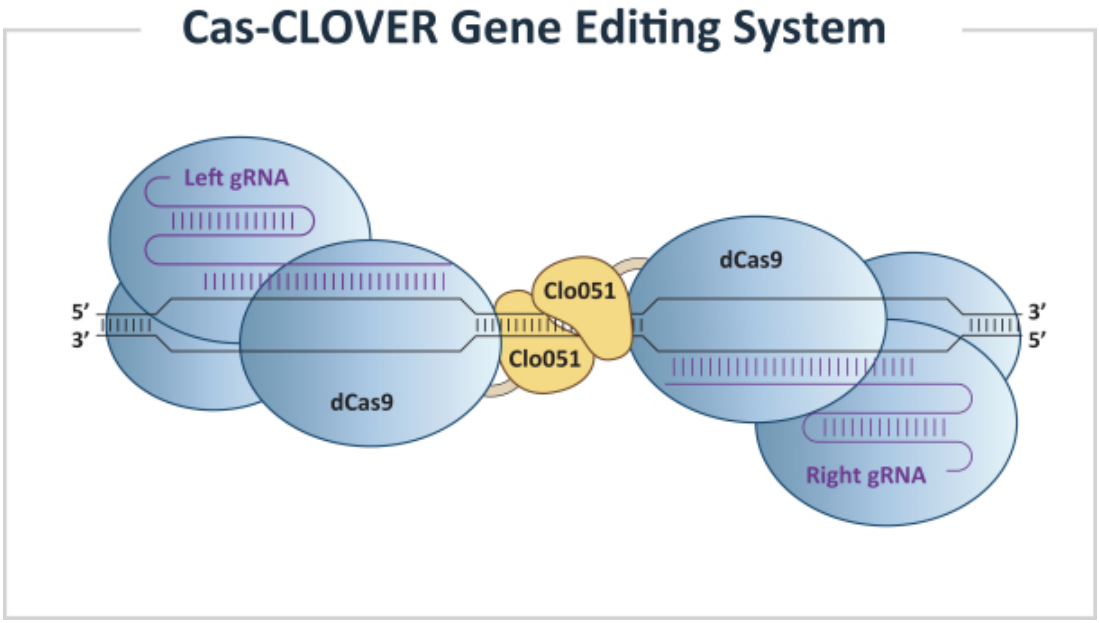
PiggyBac ITRs and other components act as strong insulators, ensuring stable transgene expression and reducing risks of oncogenesis. PiggyBac has shown lower integration into intragenic regions compared with lentivirus, meaning that it is less likely to cause a detrimental mutation.

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.

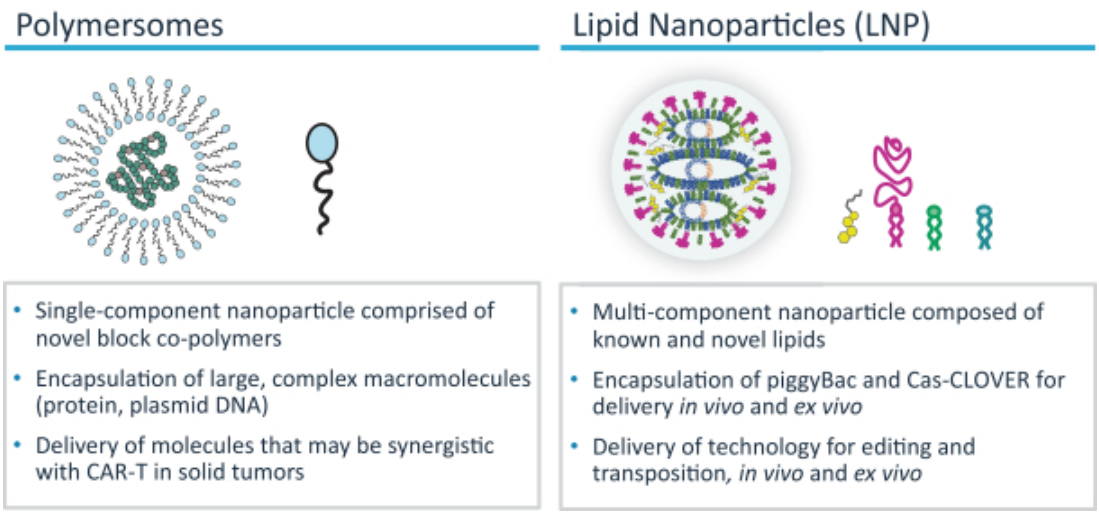
Another emerging gene editing technology is known as base editors. Base editing uses components from CRISPR systems together with other enzymes to directly install point mutations into cellular DNA or RNA without making double-stranded DNA breaks. DNA base editors comprise a catalytically disabled nuclease 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.

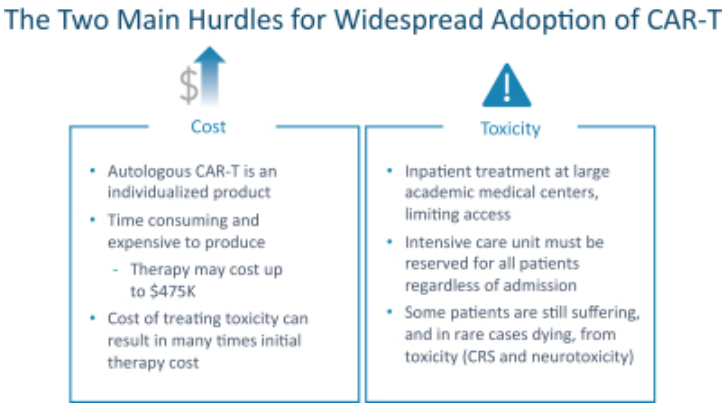
**CAR-T for Oncology: History of CAR-T**

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.

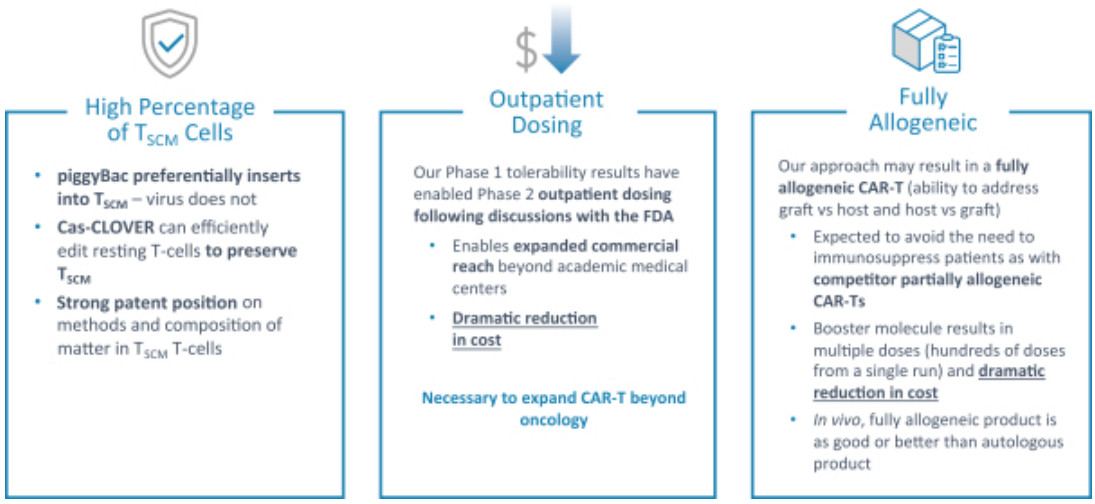
CAR-T therapy has emerged as a revolutionary and potentially curative therapy for patients with hematologic cancers, including those that have become heavily refractory to standard therapy. Currently, only autologous CAR-T therapy is available, in which T cells are removed from the body, engineered with 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.

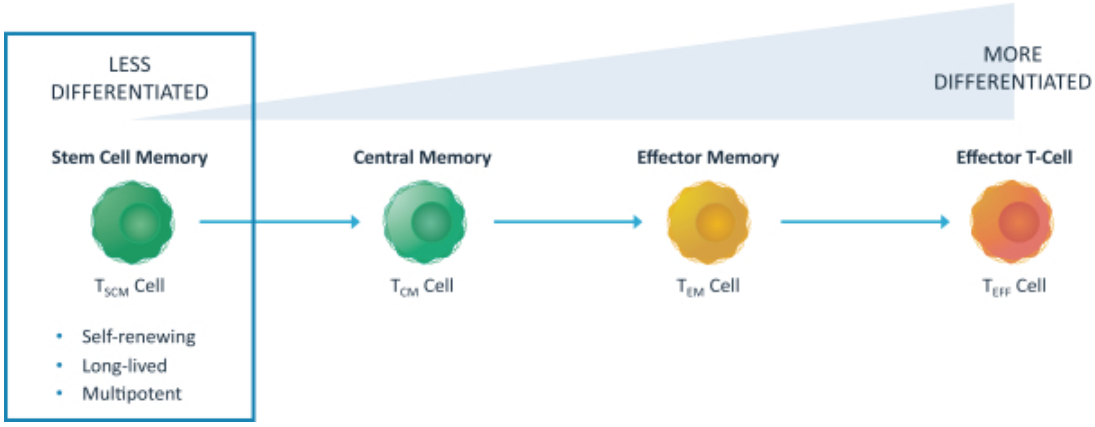
Despite extensive optimization of these viral vectors, their limitations are becoming more evident, including safety concerns regarding the insertional profile, limited genetic cargo capacity, and undesirable characteristics of the final product. We use our proprietary non-viral piggyBac DNA Modification 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*

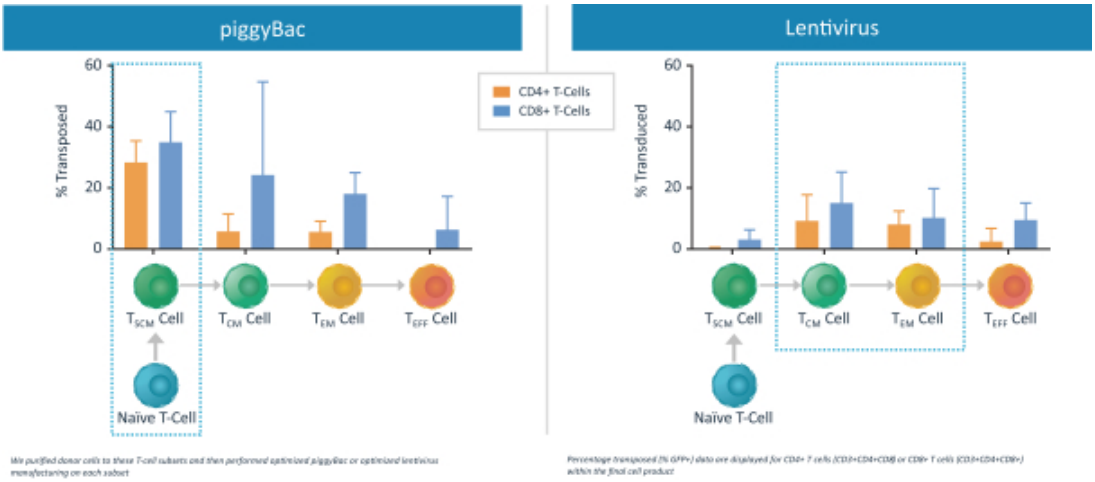
Another challenge with early-generation CAR-T products is their commercial scalability. Autologous CAR-T products are, by definition, individualized products. They are also typically expensive to produce, particularly when using viral-based manufacturing methods. We believe our non-viral piggyBac approach 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.

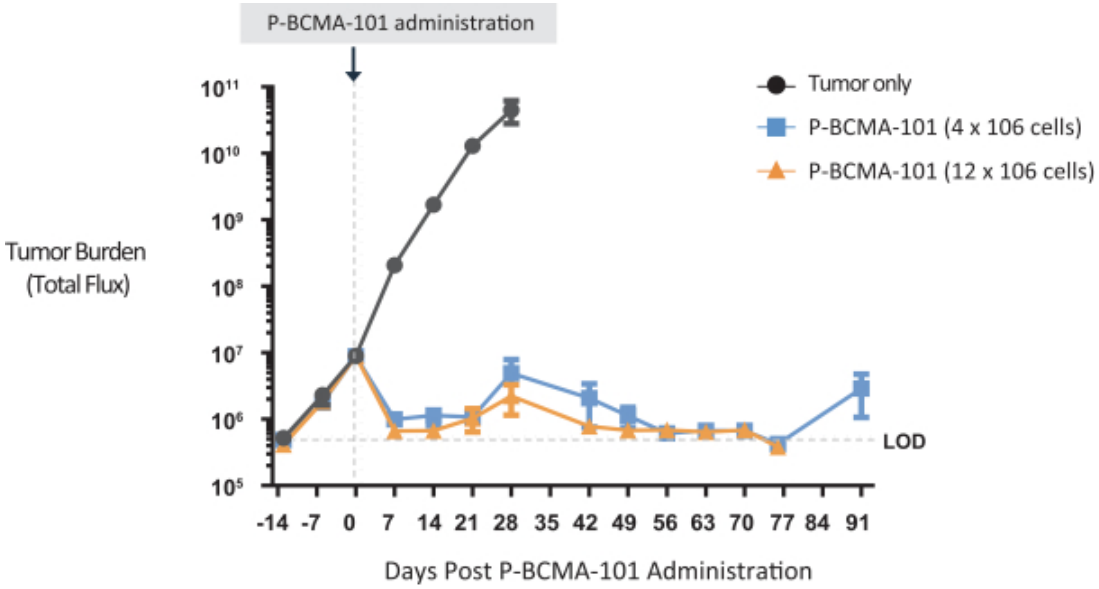



Given the one-way maturation pathway of T cells, we believe utilizing a genetic engineering method that preferentially modifies $T_{SCM}$ cells is essential for creating a final product with a high percentage of $T_{SCM}$ cells. During manufacturing, once we have completed the genetic modification step, 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.

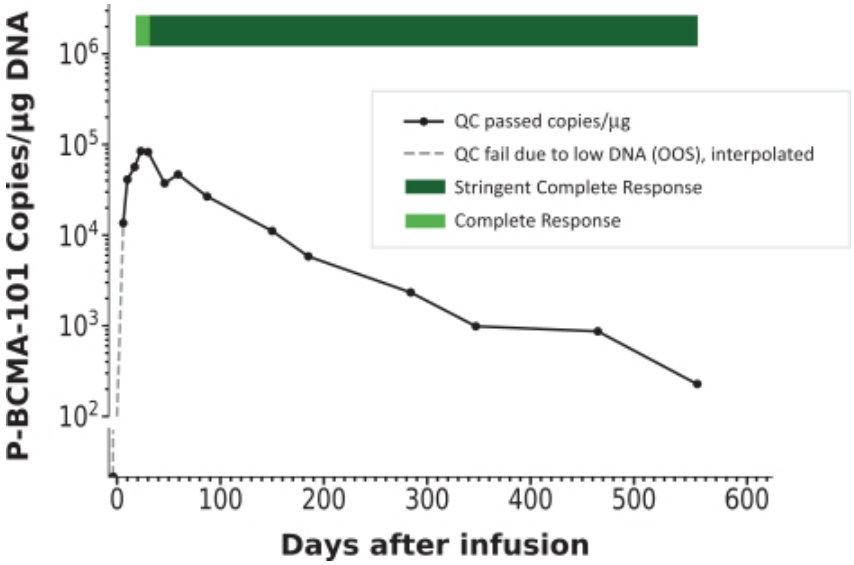
Others in the field of CAR-T development are also attempting to increase the percentage of $T_{SCM}$ cells in their products through alternative methods during the manufacturing process, including the addition of small molecule inhibitor drugs and various cytokines, reducing the time in culture, and 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.

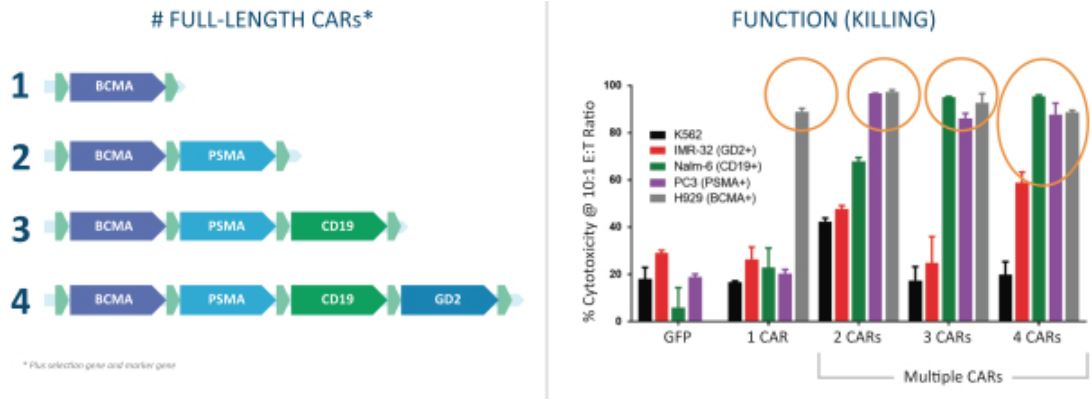
*Safety*

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.

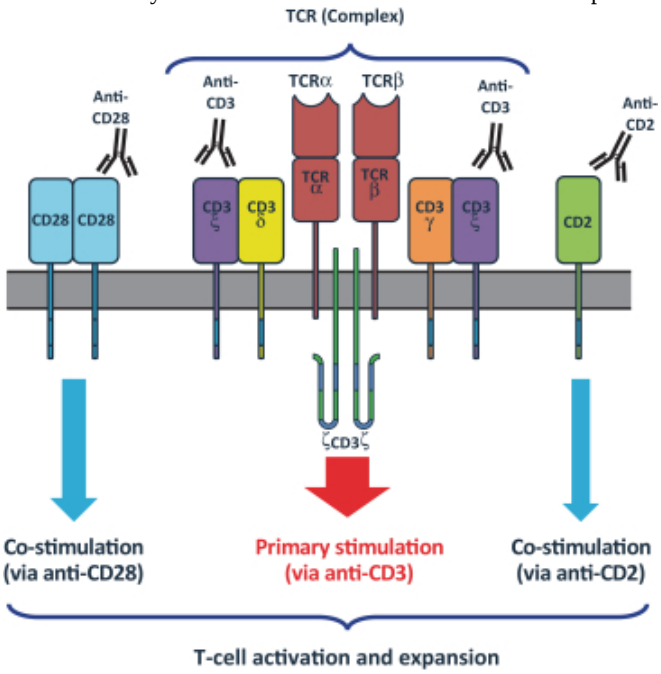
However, GvHD, a situation where the CAR-T cells are killing the healthy cells of the patient, is a serious and potentially fatal condition. Studies have suggested that the endogenous TCR is the molecule that needs to be eliminated in order to prevent GvHD. If this molecule is not completely eliminated 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.

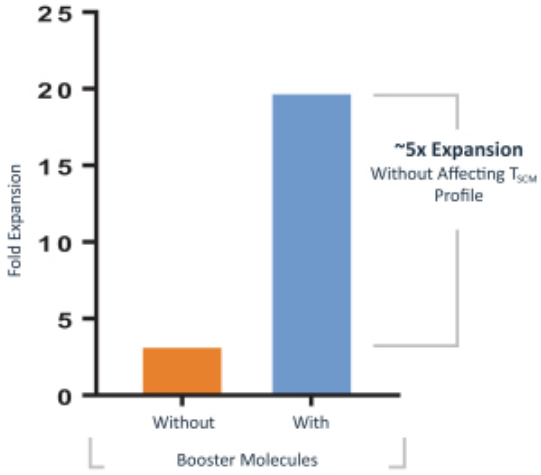
*Commercial Scalability*

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*

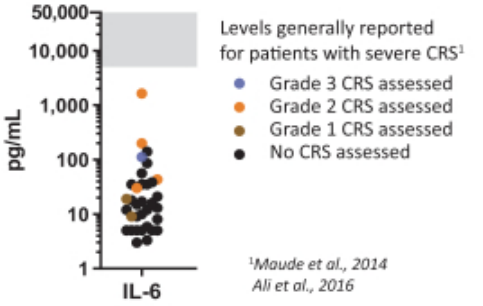
Patients treated as of the January 31, 2020 data cutoff date and evaluable for safety results received a single dose of P-BCMA-101 following a standard conditioning regimen of lymphodepleting chemotherapy consisting of cyclophosphamide and fludarabine. The table below summarizes treatment-emergent adverse 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)**

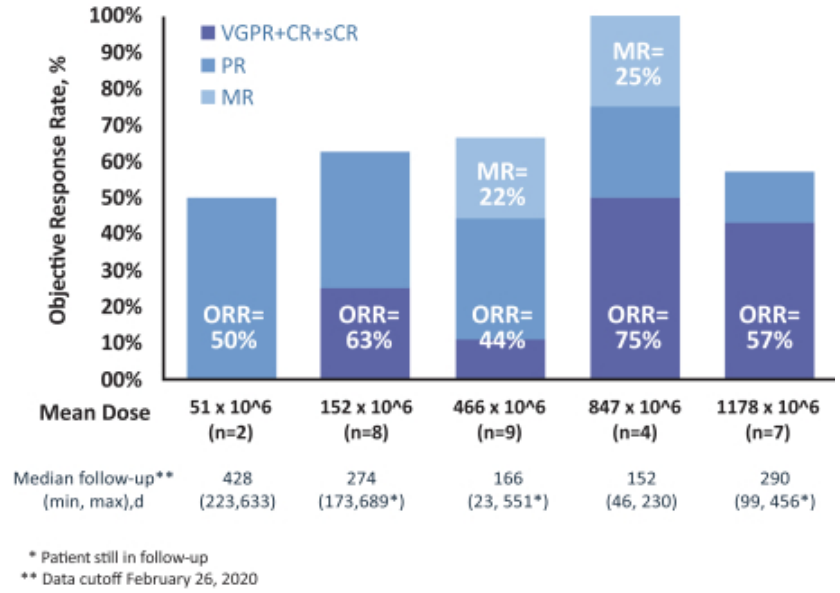
| TEAE, n (%) | Overall | ≥ Grade 3 |
|---|---|---|
| Dose Limiting Toxicity (DLT)[a] | 0 | 0 |
| Cytokine Release Syndrome[a] | 7 (20.6%) | 1 (2.9%) |
| Neurotoxicity[a] | 1 (2.9%) | 1 (2.9%) |
| Neutropenia/Neutrophil count decreased[b] | 31 (91.2) | 28 (82.4) |
| Thrombocytopenia/Platelet count decreased[b] | 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

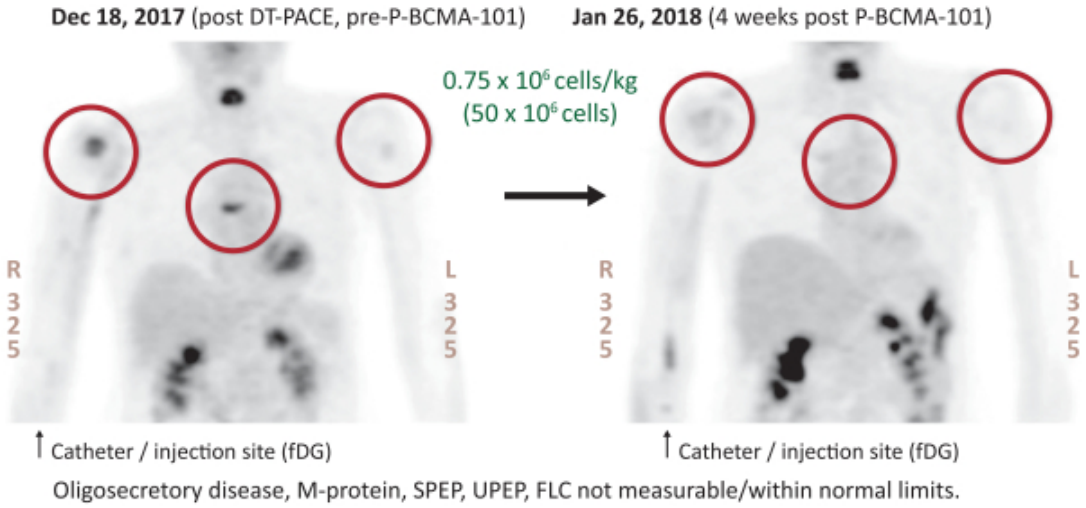
*Interim Response Results*

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.

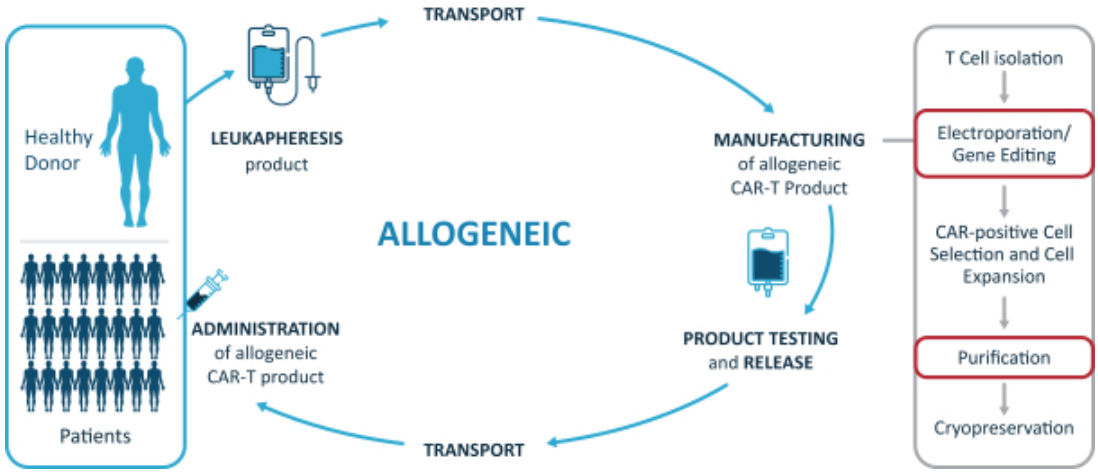
***P-BCMA-ALLO1: Allogeneic CAR-T in Multiple Myeloma***

*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 ensure patient safety and 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.

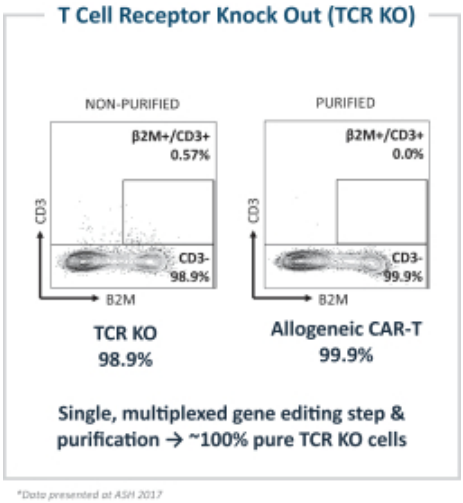



We believe an allogeneic product with a profile similar to an autologous product would have significant advantages in terms of cost and commercial reach, with the ability to treat potentially hundreds of patients from a single manufacturing run.

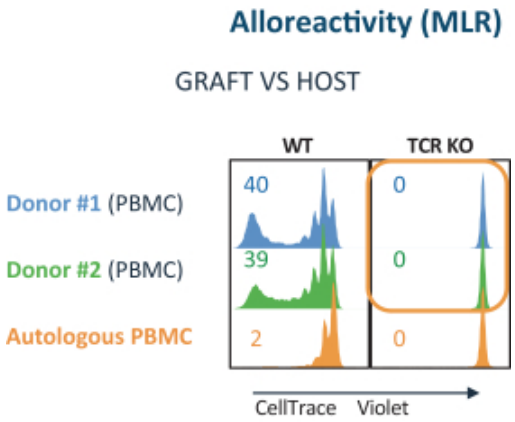
*Preclinical Data*

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.

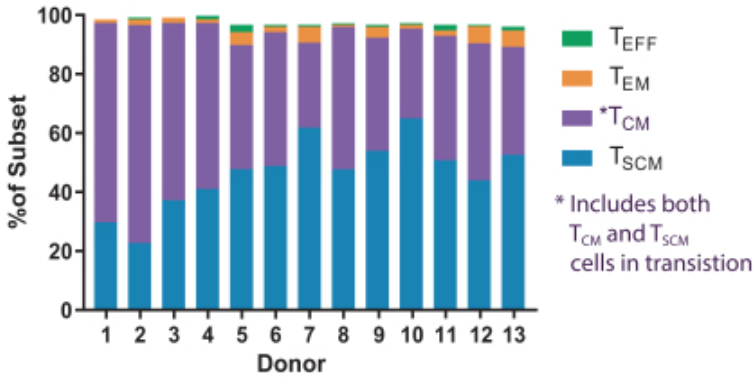


Multiple preclinical experiments demonstrate the potential of P-BCMA-ALLO1 to reduce or eliminate alloreactivity. The below figure represents an experiment for graft-vs-host alloreactivity, which is normally mediated by the intact TCR. The panel shows results of a mixed lymphocyte reaction, or MLR, where 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.

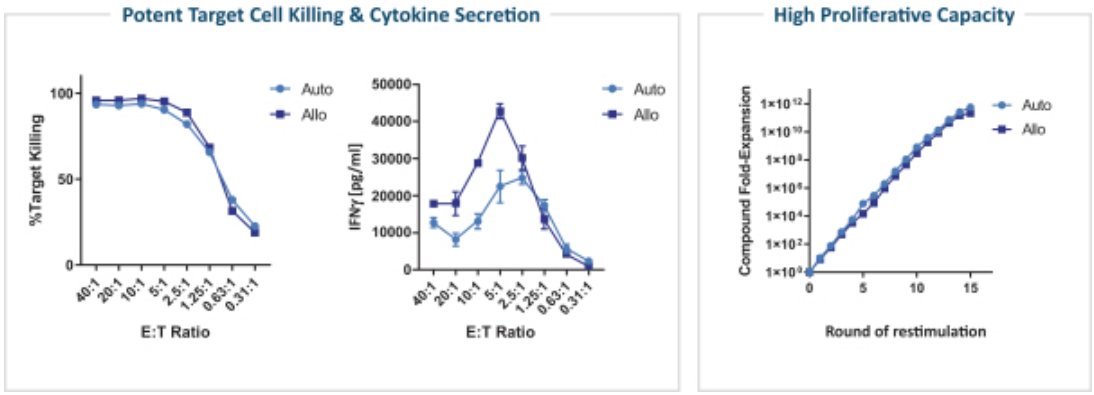



The cells used in MLR assays were WT cells or TCR KO cells, and peripheral blood mononuclear cells, or PBMC, from either the same donor (Autologous PBMC) or PBMC from allogeneic donors (Donor #1 and Donor #2). These cells were labeled with one of two cytosolic dyes: CellTrace Violet for the WT or TCR 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.



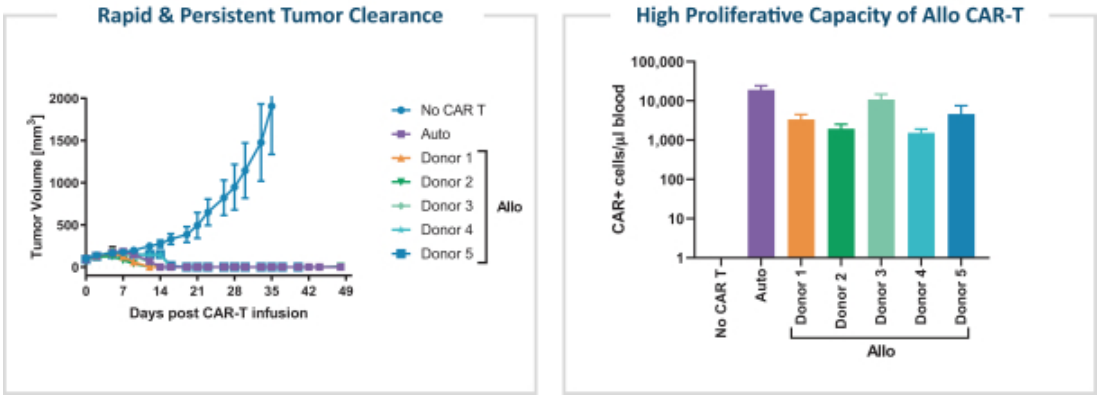
Further, we have demonstrated that in preclinical models P-BCMA-ALLO1 had comparable intensity and specificity of killing target cells as P-BCMA-101, equal or better cytokine secretion, as well as equivalent proliferative capacity:




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.

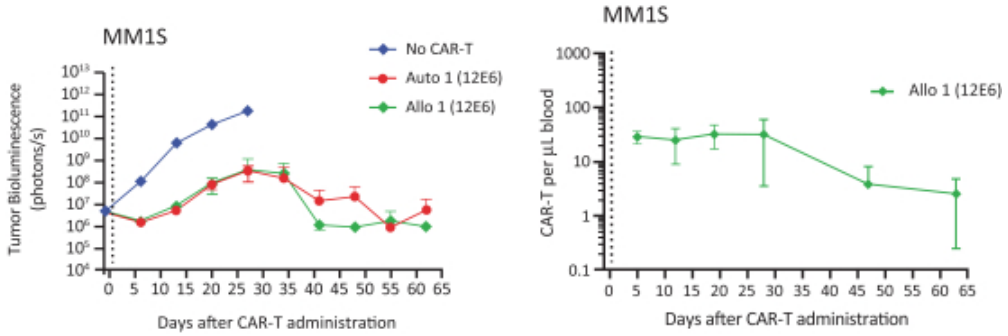
In the panel on the right in the figure above, proliferative capability of both Auto and Allo were assessed in an *in vitro* serial restimulation assay. Auto (CD3+) or Allo (CD3-) CAR-T cells, as described above, were thawed and then stimulated every 4-5 days with irradiated RPMI-8226 tumor cells which 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.



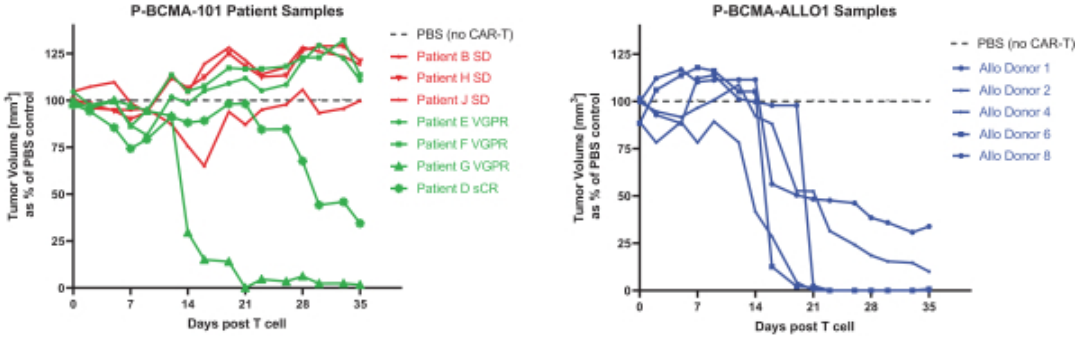

P-BCMA-ALLO1 exhibited potent anti-tumor effects in an *in vivo* mouse model of multiple myeloma. P-BCMA-ALLO1 was tested in alongside with healthy donor non-edited cells (Auto, CAR-positive/TCR-positive) in an *in vivo* model of multiple myeloma tumor control. Immunocompromised mice were implanted subcutaneously 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.

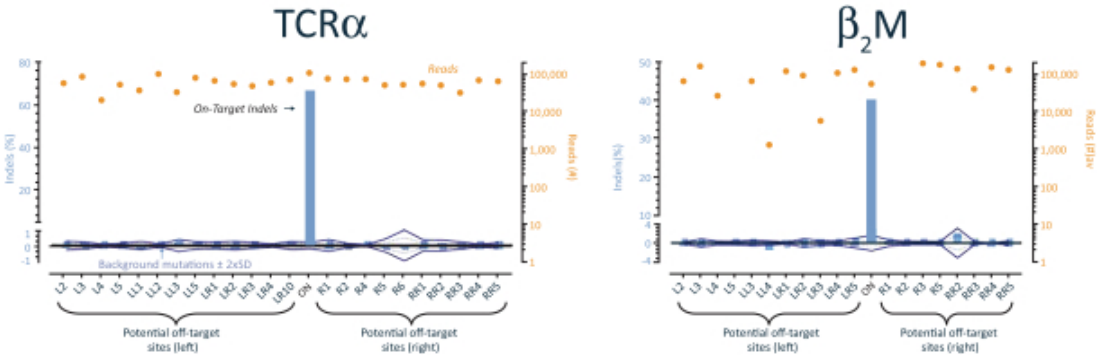



In addition, we have demonstrated that P-BCMA-ALLO1 performs equal to or better than autologous P-BCMA-101 products generated from cancer patients in an *in vivo* mouse model with a very high positive predictive value for how a product candidate will perform in the clinic. In the same mouse model (figure 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:



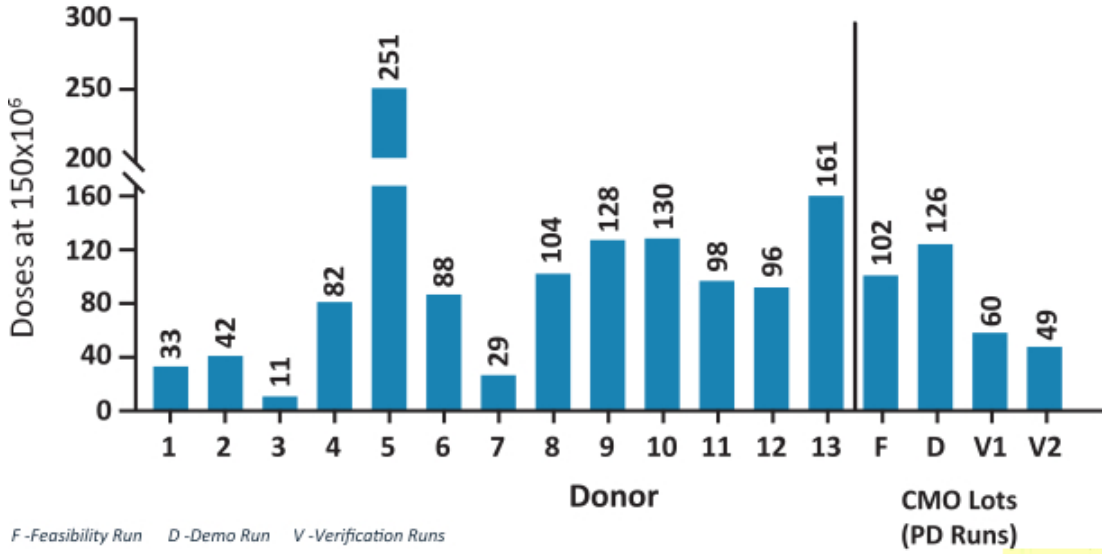

Cas-CLOVER can be used to efficiently knock-out several human T cell surface marker genes, such as TCRß and ß-2 Microglobulin (ß$_2$M). To determine the level of off-target activity by Cas-CLOVER, next generation sequencing was used to investigate T cells gene-edited for TCRß or ß$_2$M genes. To do so, 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.

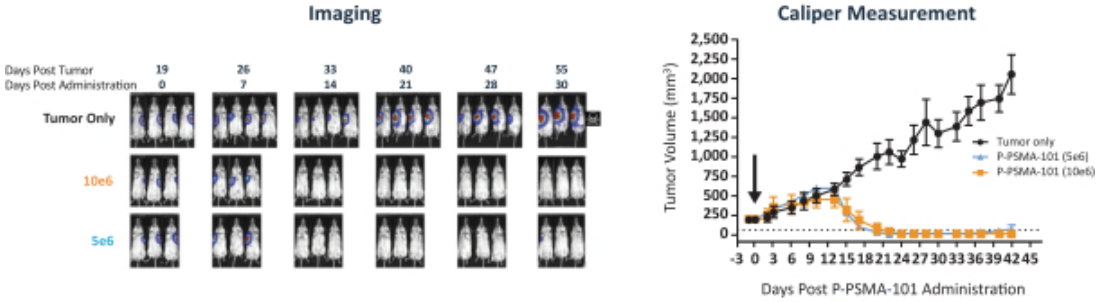
Treatment paradigms for prostate cancer vary based on the age of the patient at the time of diagnosis. Typical early treatment options for prostate cancer range from active surveillance, radiation therapy, cryotherapy, immunotherapy, hormone therapy and surgical treatment. For metastatic disease, the 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*

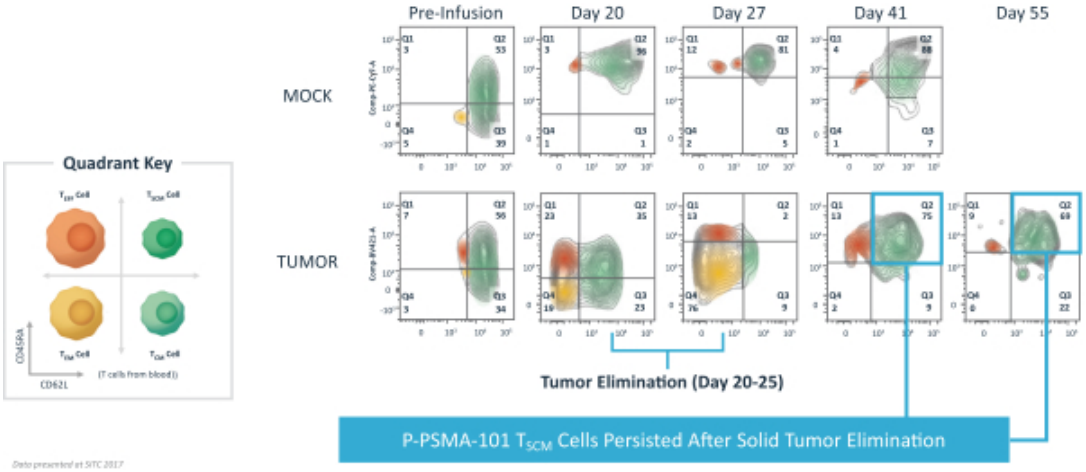
P-PSMA-101 resulted in the elimination of tumor cells to undetectable levels in 100% of animals, with one incidence of a relapse in the low dose cohort, in a preclinical model of mCRPC. This preclinical model involves the implantation of subcutaneous solid tumors comprised of a human mCRPC cell line (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 ($10 \times 10^6$), as well as a low dose of five million cells per animal ($5 \times 10^6$). 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.

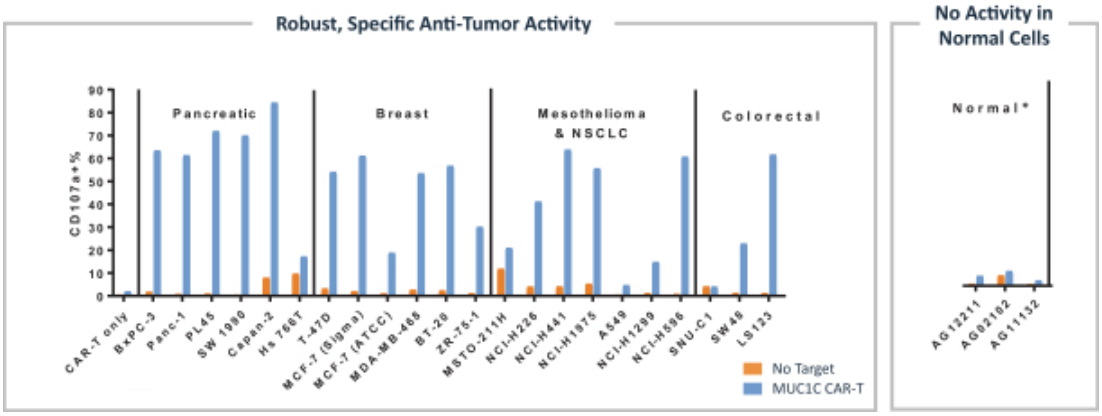
*Target Indication*

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 |

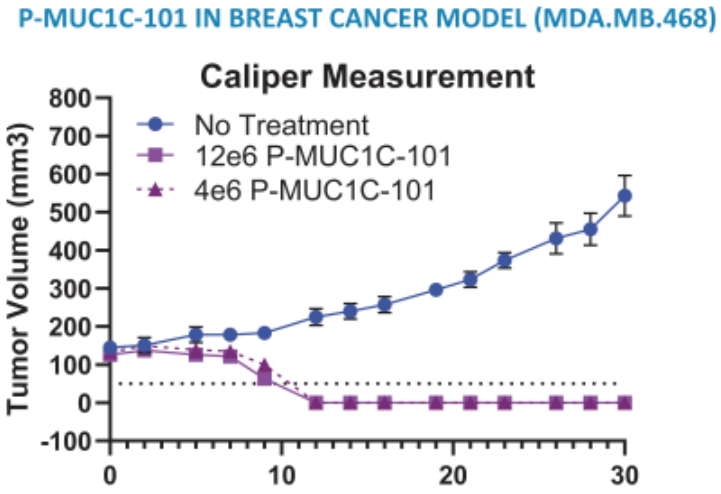
*Preclinical Data*

In our preclinical studies, an autologous MUC1C CAR-T showed robust anti-tumor activity against multiple tumor lines:

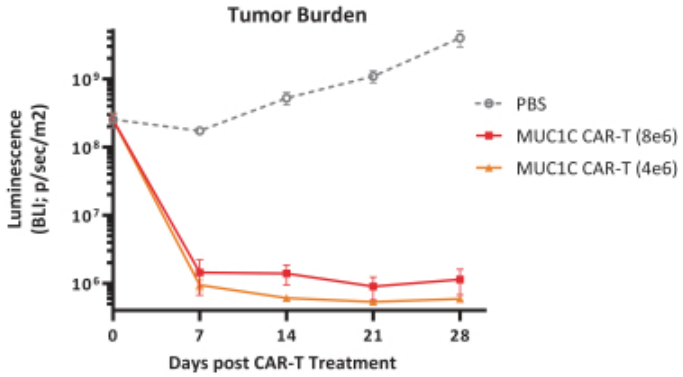



The autologous MUC1C CAR-T was evaluated for specificity and function using a standard T cell degranulation assay. Degranulation is a surrogate of T cell killing that can be easily measured by FACS staining for intracellular CD107a expression following co-culture with cells expressing target antigen. 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:



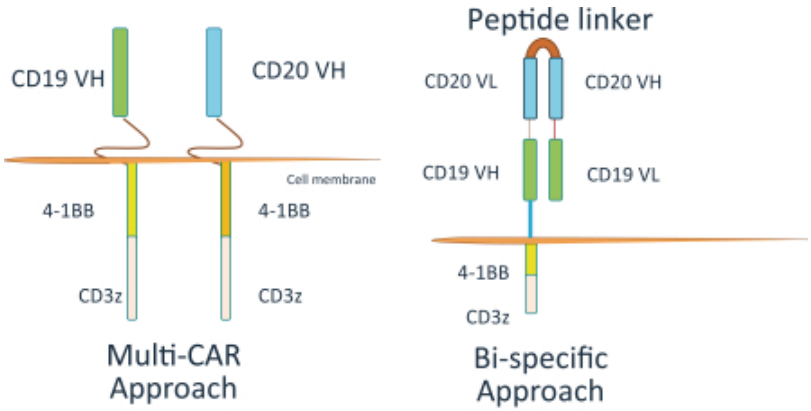

We also tested an autologous MUC1C CAR-T in a preclinical xenograft model of ovarian cancer in which immunocompromised (NSG) mice were implanted intraperitoneally with 5 x 10E6 human OVCAR3 ovarian cancer cells 14 days before CAR-T cell injection. In this model, intraperitoneally administered MUC1C CAR-T 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.

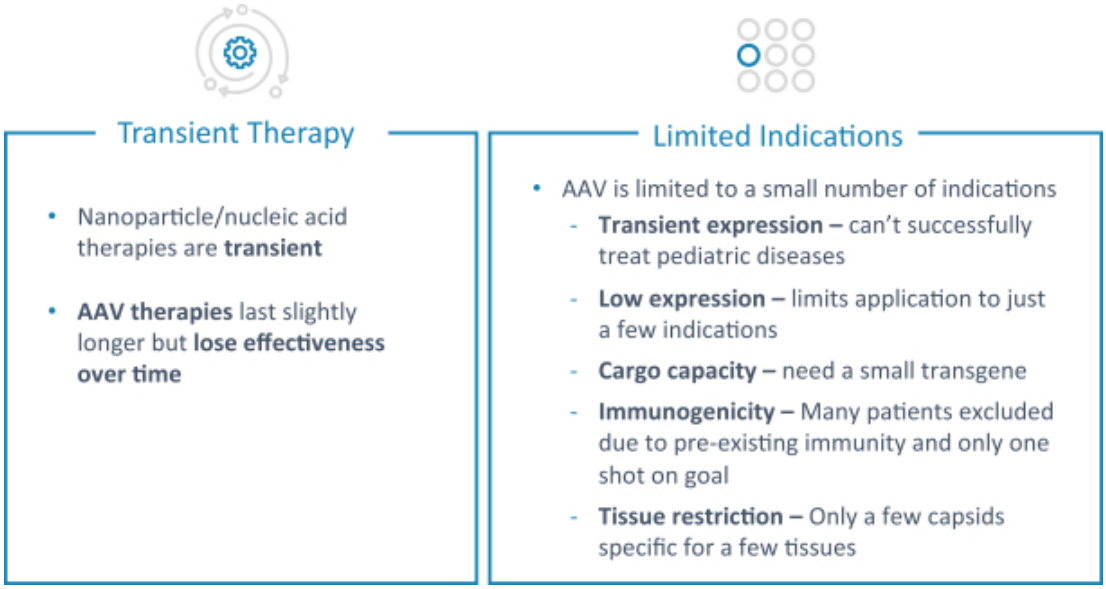
***Dual CAR BCMA/CD19***. Dual CAR BCMA/CD19 is an allogeneic, off-the-shelf CAR-T product candidate in preclinical development for multiple myeloma. Dual CAR BCMA/CD19 contains two fully functional CAR molecules to target cells that express either BCMA or CD19. Based on published studies of CD19 therapeutic 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.

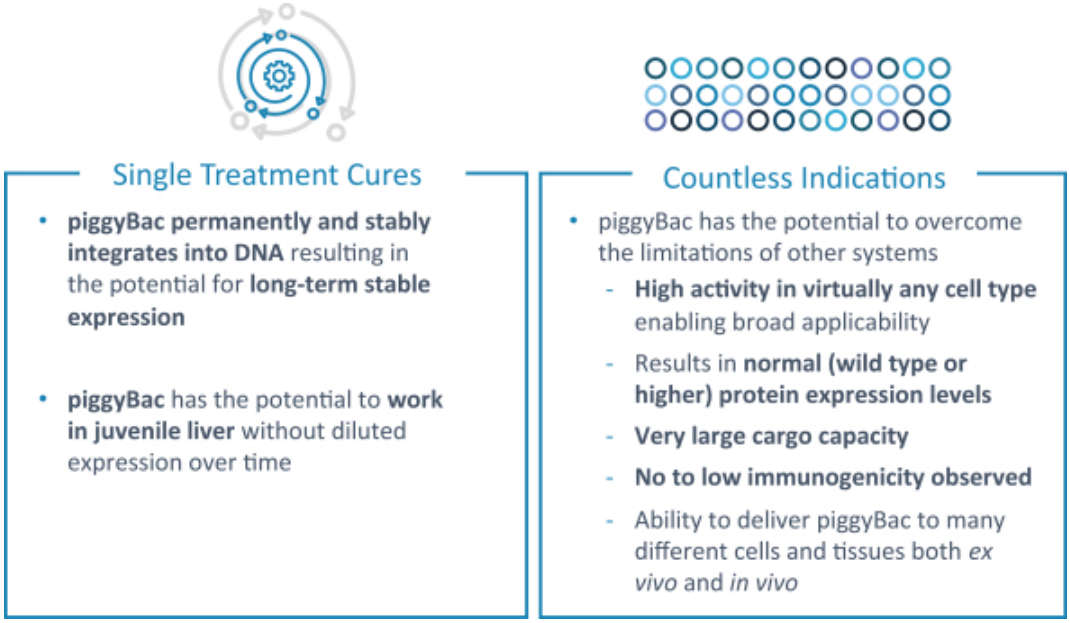



Our technology is designed to address the shortcomings of other AAV approaches in several important ways. First, by combining our piggyBac technology with AAV, we believe we can create a therapeutic that integrates the therapeutic transgene into the DNA and becomes a stable part of the patient's DNA, 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.

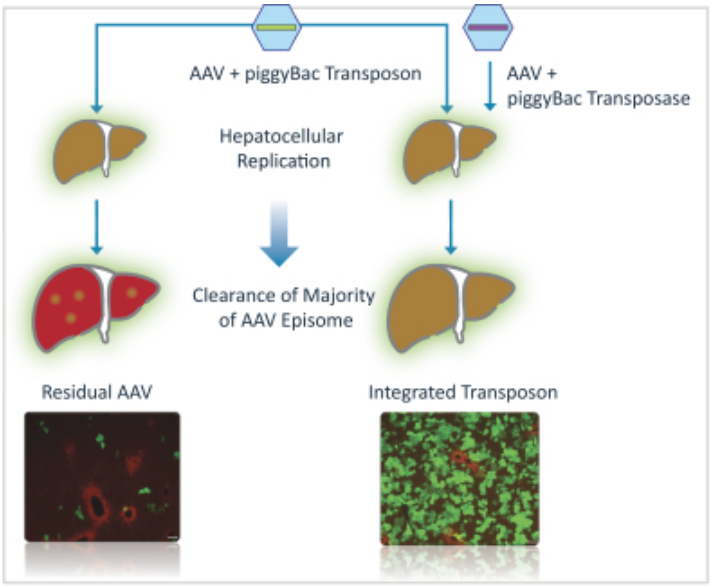
We are also combining our piggyBac technology with our nanoparticle technology to deliver therapeutic transgenes in an effort to eliminate the need for AAV altogether. This would completely avoid virus-related toxicity and also enable delivery of larger genes and repeat dosing, which would further expand 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.

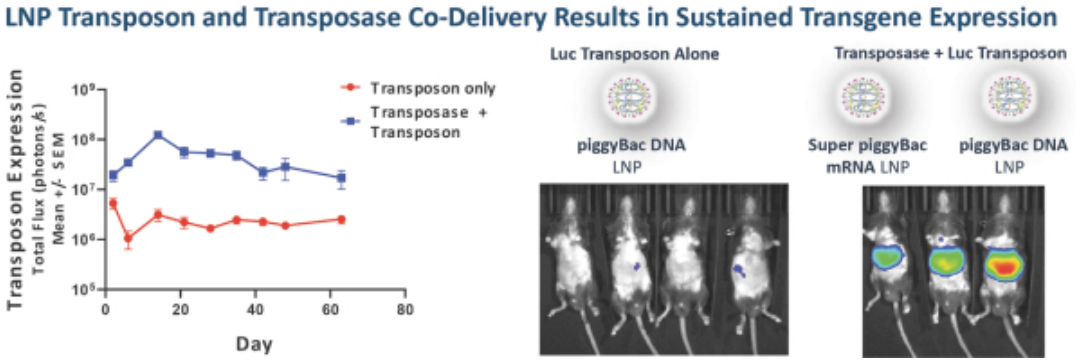



Any AAV-based system can be converted into a piggyBac-AAV vector by simply adding the piggyBac ITRs, which can be as small as 50 base pairs each, inside of the AAV ITRs (AAV + piggyBac transposon). We expect this vector will perform the same as a standard AAV vector in the absence of the piggyBac transposase, 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*

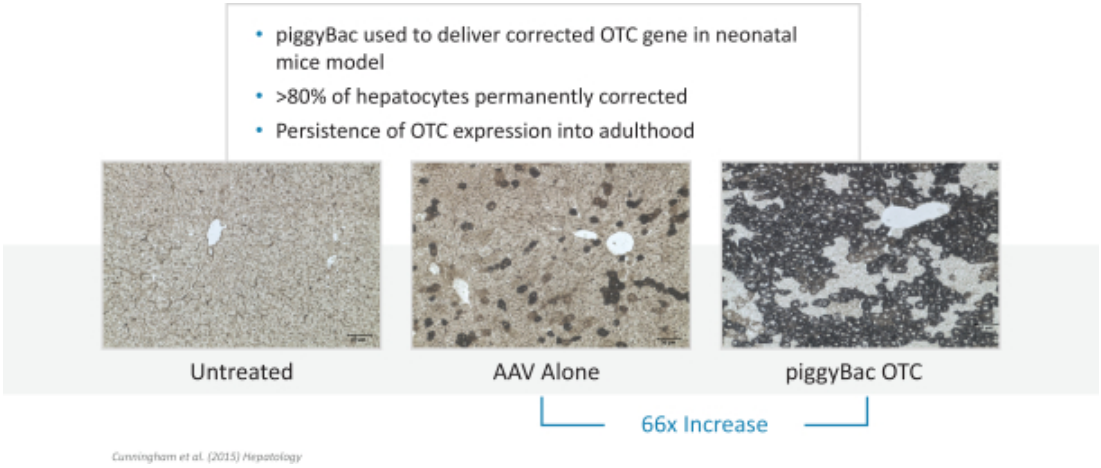
P-OTC-101 is an *in vivo* liver-directed gene therapy candidate for the treatment of OTC deficiency, which we believe has the potential to achieve single-treatment, lifetime durable responses. We are using our proprietary piggyBac DNA Modification System combined with a liver-directed AAV to deliver 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*

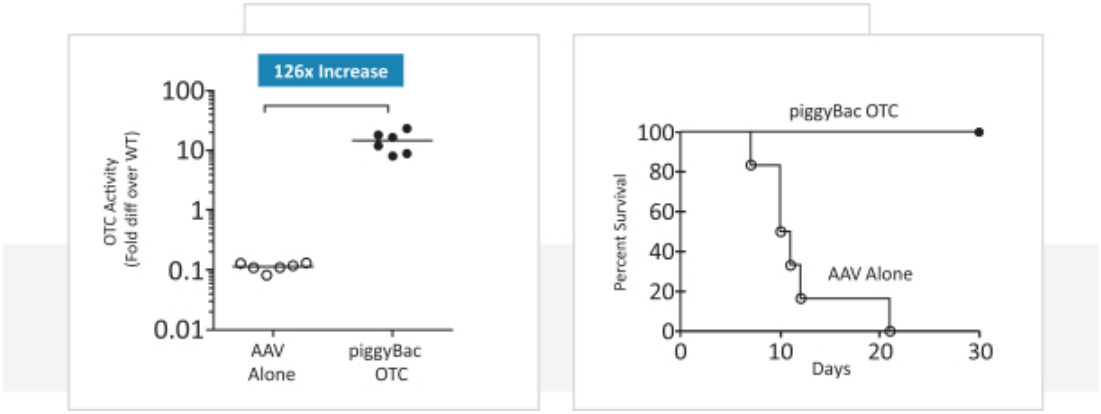
OTC is a rare genetic disorder characterized by complete or partial lack of the enzyme OTC. OTC is an enzyme that plays a role in the breakdown and removal of nitrogen from the body, a process known as the urea cycle. The lack of the OTC enzyme results in excessive accumulation of nitrogen in the form 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.

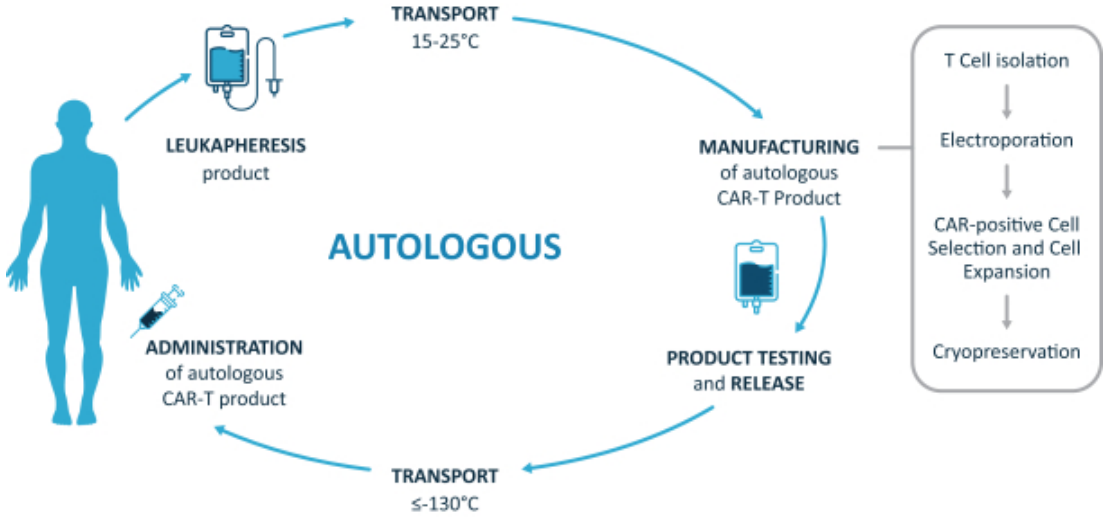
***Potential Additional Programs and Partnership Opportunities***

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.

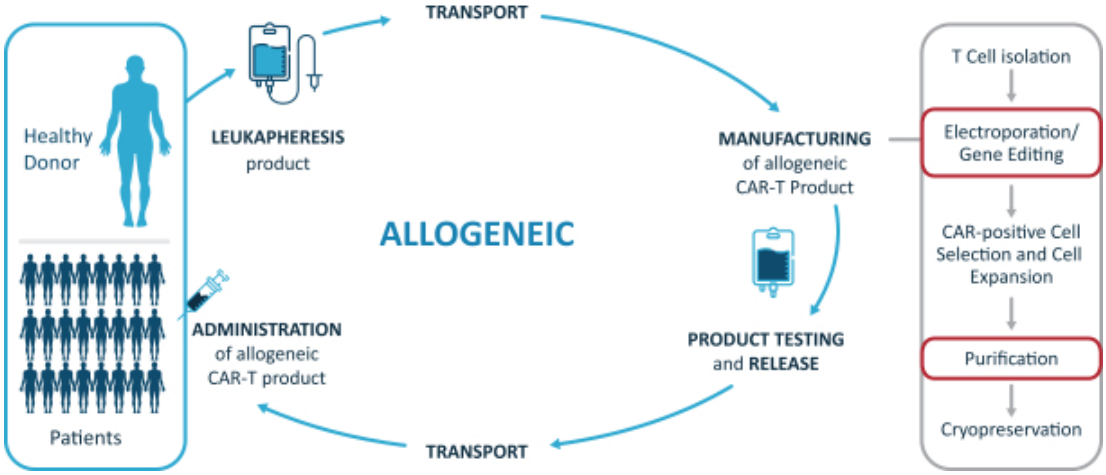
**Our CAR-T Manufacturing Processes**

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 2039. We also have issued U.S. patents covering manufacturing methods and cell culture media used to produce these genetically modified $T_{SCM}$ cells. We also have issued composition of matter and method patents in the U.S. and ex-U.S. patents protecting our piggyBac DNA Modification System and our Cas-CLOVER site-specific gene editing system that collectively have patent terms expiring no earlier than 2037.

***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. 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, 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. | 49 | Director |
| Marcea B. Lloyd, J.D. | 71 | Director |
| Catherine J. Mackey, Ph.D. | 64 | Director |
| Sean Murphy | 67 | Director |
| John P. Schmid, M.B.A. | 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. 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. 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 and audit committee and nominating and corporate governance committee 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 and the audit committee, and since April 2020 a member of the compensation committee, of GW Pharmaceuticals, a publicly held British biopharmaceutical company focused on the development of prescription cannabinoid-based medicines. Since March 2015, Dr. Mackey has served as the Chief Executive Officer of CYPrus Therapeutics, Inc., a clinical stage pharmaceutical company focused on expanding the therapeutic potential of approved drugs. Since March 2014, Dr. Mackey has served as the chairman of the board of directors of Cour Pharmaceutical Development, a nanobiotechnology company focused on the development of immune therapies. From June 2015 to September 2016, Dr. Mackey served as a member of the board of directors, the audit committee and the nominating and corporate governance committee of Sequenom Inc., a life sciences company focusing on the development and commercialization of molecular diagnostics testing services. From November 2011 to February 2013, Dr. Mackey served as a member of the board of directors and the compensation committee of YM Biosciences Inc., a Canadian drug development company. From May 2001 to December 2010, Dr. Mackey served as Senior Vice President, Worldwide R&D and Director, of Pfizer's La Jolla Laboratories, one of Pfizer's primary pharmaceutical research and development sites. In addition, since January 2006, 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.

Our board of directors has appointed to serve as our lead independent director. As lead independent director, 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 eight 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 , and , and their terms will expire at the annual meeting of stockholders to be held in 2021;
- the Class II directors will be , and , and their terms will expire at the annual meeting of stockholders to be held in 2022; and
- the Class III directors will be and , 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 , and , and 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 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 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 , and , and 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 , and , and 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 12 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 270,000 shares of common stock. The option has an exercise price of $9.81 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 160,000 shares of common stock in connection with the commencement of his employment with us. The option has an exercise price of $9.81 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 375,000 shares of common stock. The option grant consisted of 40,000 incentive stock options with an exercise price of $10.80 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 260,000 non-qualified stock options with an exercise price of $9.81 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 1,405,944 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 180,000 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 160,000 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, 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.

For purposes of Dr. Ostertag's employment agreement, the following definitions apply:

- "Cause" for termination means that we have determined in our sole discretion that the executive has engaged in any of the following: (1) a material breach of any covenant or condition under his employment agreement or any other agreement between the parties; (2) any act constituting dishonesty, fraud, immoral or disreputable conduct; (3) any conduct which constitutes a felony under applicable law; (4) violation of any written company policy or any act of misconduct; (5) negligence or incompetence in the performance of the executive's duties or failure to perform

the executive's duties in a manner satisfactory to us after the expiration of 10 days without cure after written notice of the failure; or (6) breach of fiduciary duty.

- "Good Reason" for resignation means the occurrence of any of the following without the executive's prior written consent: (1) a material reduction in the executive's base salary of at least 10% (unless pursuant to a salary reduction program applicable generally to similarly situated employees); (2) relocation of the executive's principal place of employment to a place that is more than 35 miles from his then-current principal place of employment immediately prior to the relocation; or (3) the assignment to the executive of any duties or responsibilities which result in the material diminution of his then current position. Notwithstanding the foregoing, in order to resign for Good Reason, the executive must (a) provide written notice to us within 30 days after the first occurrence of the event giving rise to Good Reason, (b) allow us at least 30 days from receipt of the written notice to cure the event, and (c) if the event is not reasonably cured within the period, the executive's resignation from all positions held with us is effective not later than 30 days after the expiration of the cure period.

- "Change in Control" means (1) a sale, lease, exchange or other transfer of all or substantially all of our assets; (2) a merger or consolidation in which we are not the surviving corporation (unless the holders of our outstanding voting stock immediately prior to the transaction own, immediately after the transaction, securities representing at least 50% of the voting power of the corporation or other entity surviving such transaction); (3) a reverse merger in which we are the surviving corporation but the shares of our common stock outstanding immediately preceding the merger are converted into other property (unless the holders of our outstanding voting stock immediately prior to the transaction own, immediately after the transaction, securities representing at least 50% of our voting power); (4) any transaction in which in excess of 50% of our voting power is transferred; or (5) the acquisition by any person or entity of more than 50% of either (a) the outstanding shares of our common stock or (b) our combined voting power.

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 | 117,162 | — | $ 0.264 | 5/3/2020 |
| | 2/29/2016(2) | 80,706 | 3,509 | $ 1.034 | 2/28/2021 |
| | 2/29/2016(2) | 136,417 | 5,932 | $ 0.94 | 2/28/2026 |
| | 12/11/2019(2) | — | 40,000 | $ 10.80 | 12/10/2024 |
| | 12/11/2019(2) | — | 260,000 | $ 9.81 | 12/10/2029 |
| Matthew A. Spear, M.D. | 6/27/2016(2) | 157,500 | 22,500 | $ 1.06 | 6/19/2026 |
| | 5/01/2019(2) | 39,375 | 230,625 | $ 9.81 | 9/04/2029 |
| Kerry D. Ingalls | 10/16/2019(2) | — | 160,000 | $ 9.81 | 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 , 2020 and our stockholders approved our 2020 Plan in , 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 shares, which is the sum of (1) new shares, plus (2) shares that remain available for the issuance of awards under our 2015 Plan at the time our 2020 Plan becomes effective. In addition, the share reserve of the 2020 Plan will be automatically increased by 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 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, for an additional number of shares not to exceed shares of common stock. 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) 4% 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, (2) shares of common stock, or (3) 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 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.

*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, official marital settlement agreement, or other divorce or separation instrument.

*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

March 2019. As of March 31, 2020, there were 529,081 shares remaining available for the future grant of stock awards under our 2015 Plan. As of March 31, 2020, there were outstanding stock options covering a total of 4,805,214 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 8,454,710 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 8,454,710 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 , 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 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) % 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) 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 12 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, 60,000, Ms. Lloyd, 60,000, and Dr. Mackey, 60,000, 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 award
(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 40,000 shares of common stock. The option has an exercise price of $9.62 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 40,000 shares of common stock. The option grants each have an exercise price of $13.27 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 July 2019, we granted Ms. Lloyd, Dr. Mackey and Mr. Schmid each an option to purchase 10,000 shares of common stock. The option grants each have an exercise price of $9.41 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 , 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 $ ;
- an additional annual cash retainer of $ for service as chairman of the board of directors or lead independent director;
- an additional annual cash retainer of $ , $ and $ 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 $ , $ and $ 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 shares of our common stock, vesting in 36 equal monthly installments; and
- an annual option grant to purchase shares of our common stock, vesting in 12 equal monthly installments.

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 through the earlier of the first anniversary of the date of grant or the next annual stockholder meeting. The term of each option will be 10 years, subject to earlier termination as provided in the 2020 Plan.

## 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 1,517,203 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 622,888 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 March 31, 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 49,608,214 shares of common stock outstanding at March 31, 2020, after giving effect to the conversion of all outstanding shares of preferred stock as of that date into an aggregate of 32,934,785 shares of our common stock. For purposes of computing percentage ownership after this offering, we have assumed that (1) 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 March 31, 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) | 11,457,593 | 23.2% | % |
| Novartis Pharma AG(2) | 7,367,387 | 14.9% | % |
| Eric Ostertag Living Trust dated March 30, 2016(3) | 4,953,355 | 10.0% | % |
| Titan LLC(4) | 4,545,454 | 9.2% | % |
| Longitude Venture Partners III, L.P.(5) | 3,072,914 | 6.2% | % |
| **Directors and Named Executive Officers** | | | |
| Eric Ostertag, M.D., Ph.D.(6) | 12,599,393 | 25.4% | % |
| Matthew A. Spear, M.D.(7) | 243,750 | * | % |
| Kerry D. Ingalls(8) | 23,333 | * | % |
| Mark J. Gergen, J.D.(9) | 210,937 | * | % |
| David Hirsch, M.D., Ph.D.(10) | 3,072,914 | 6.2% | % |
| Sean Murphy(1) | 11,457,593 | 23.2% | % |
| John Schmid(11) | 36,666 | * | % |
| Catherine J. Mackey, Ph.D.(12) | 36,110 | * | % |
| Marcea B. Lloyd, J.D.(13) | 36,110 | * | % |
| All current executive officers and directors as a group (10 persons)(14) | 27,812,734 | 55.3% | % |

* 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) 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.

(3) 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.

(4) Represents shares of common stock held by Titan LLC. Titan LLC is owned by the Ostertag Descendents' Trust and Dr. Ostertag's minor daughter is the sole beneficiary of the Ostertag Descendents' 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.

(5) 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.

(6) Consists of (a) the shares described in footnotes (3) and (4) above, (b) 1,198,923 shares of common stock held by Ostertag Family Trust dated March 30, 2016, of which Dr. Ostertag is a trustee, (c) 453,174 share of common stock held by Dr. Ostertag, (d) 226,563 shares of common stock underlying options held by Dr. Ostertag and exercisable within 60 days of March 31, 2020, (e) 465,567 shares of common stock held by Twin Prime Investments, which is an entity wholly owned by Dr. Ostertag, (f) 319,039 shares of common stock issuable upon conversion of preferred stock held by Twin Prime Investments, and (g) 437,318 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.

(7) Represents 243,750 shares of common stock underlying options exercisable within 60 days of March 31, 2020.

(8) Represents 23,332 shares of common stock underlying options exercisable within 60 days of March 31, 2020.

(9) Represents 210,937 shares of common stock underlying options exercisable within 60 days of March 31, 2020.

(10) Represents shares of common stock issuable upon conversion of preferred stock held by LVP III as described in footnote (5) above. Dr. Hirsch disclaims beneficial ownership of these securities, except to the extent of his pecuniary interest therein. The business address for Dr. Hirsch is 2740 Sand Hill Road, Menlo Park, California 94025.

(11) Represents 36,666 shares of common stock underlying options exercisable within 60 days of March 31, 2020.

(12) Represents 36,110 shares of common stock underlying options exercisable within 60 days of March 31, 2020.

(13) Represents 36,110 shares of common stock underlying options exercisable within 60 days of March 31, 2020.

(14) Includes the shares described in footnote (1) and footnotes (6) through (13) above, and shares held or issuable upon exercise of stock options by Ms. Mylet 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 shares, all with a par value of $0.0001 per share, of which:

- shares are designated common stock; and
- 10,000,000 shares are designated preferred stock.

As of March 31, 2020, after giving effect to the conversion of all outstanding shares of preferred stock into an aggregate of 32,934,785 shares of our common stock, there were outstanding:

- 49,608,214 shares of our common stock held of record by 148 stockholders;
- 151,042 shares of our common stock issuable upon exercise of outstanding warrants; and
- 4,805,214 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 | 116,618 | $ 3.43 |
| Series B preferred stock | 34,424 | $ 5.81 |

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 116,618 shares of our common stock at an exercise price equal to $3.43 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 17,212 shares of our common stock at an exercise price equal to $5.81 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 17,212 shares of our common stock at an exercise price equal to $5.81 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 4,805,214 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 32,934,785 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 on March 19, 2019.

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) no exercise of the underwriters' option to purchase additional shares of common stock from us and (2) no exercise of outstanding options or warrants, an aggregate of 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 common shares then outstanding, which will equal approximately shares immediately after this offering assuming no exercise of the underwriters' option to purchase additional shares, based on the number of common shares outstanding as of March 31, 2020; 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 32,934,785 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 supplement. 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 supplement.

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 the gross amount of the dividends on our common stock paid to such holder and the tax withheld, if any, with respect to such dividends. 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 | |

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 $ 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 $ .

**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 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.

**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 shares 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.**
**INDEX TO CONSOLIDATED FINANCIAL STATEMENTS**

## 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 and in accordance with auditing standards generally accepted in the United States of America. 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

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; 15,307,647 and 16,455,934 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 | $ (2.92) | $ (5.50) |
| Weighted-average shares of common stock, basic and diluted | 15,193,494 | 15,735,244 |
| Pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited) | | $ (1.94) |
| Pro forma weighted-average shares of common stock outstanding, basic and diluted (unaudited) | | 44,804,787 |

*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 | 14,667,848 | $ 1 | $ (12,254) | $ — | $ (21,290) | $ (33,543) |
| Net loss | — | — | — | — | — | — | (44,404) | (44,404) |
| Issuance of common stock under employee stock compensation plans | — | — | 639,198 | 1 | 253 | — | — | 254 |
| Issuance of common stock for acquisition of Vindico | — | — | 601 | — | — | — | — | — |
| 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 | 15,307,647 | $ 2 | $ (11,026) | $ — | $ (65,694) | $ (76,718) |
| Net loss | — | — | — | — | — | — | (86,527) | (86,527) |
| Issuance of common stock under employee stock compensation plans | — | — | 68,199 | — | 69 | — | — | 69 |
| Issuance of common stock for acquisition of Vindico | — | — | 1,080,088 | — | 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 | 16,455,934 | $ 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.

### *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.

**Poseida Therapeutics, Inc.**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)**

***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.

**Poseida Therapeutics, Inc.**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)**

***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 $15.27, 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.

**Poseida Therapeutics, Inc.**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS—(Continued)**

***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 $13.27 per share. The estimated number of shares issuable was 1.5 million as of December 31, 2018. In July 2019, the Company achieved the milestone and issued 1,080,088 shares of common stock to the former Vindico shareholders. 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 $9.81 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 reimbursment | $ — | $ 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 | Liquidiation Preference | Common Stock Issuable Upon Conversion |
| Series A Preferred Stock | 9,696,798 | 9,696,798 | $ 31,063 | $ 31,063 | 9,696,798 |
| Series A-1 Preferred Stock | 3,428,572 | 3,253,645 | 11,083 | 11,083 | 3,253,645 |
| Series B Preferred Stock | 5,285,568 | 5,249,568 | 30,314 | 30,314 | 5,249,568 |
| Total | 18,410,938 | 18,200,011 | $ 72,460 | $ 72,460 | 18,200,011 |

| | December 31, 2019 | | | | |
|---|---|---|---|---|---|
| | Preferred Stock Authorized | Preferred Stock Issued and Outstanding | Carrying Value | Liquidiation Preference | Common Stock Issuable Upon Conversion |
| Series A Preferred Stock | 9,696,798 | 9,696,798 | $ 31,063 | $ 31,063 | 9,696,798 |
| Series A-1 Preferred Stock | 3,370,263 | 3,253,645 | 11,083 | 11,083 | 3,253,645 |
| Series B Preferred Stock | 5,283,992 | 5,249,568 | 30,314 | 30,314 | 5,249,568 |
| Series C Preferred Stock | 14,734,774 | 14,734,774 | 149,713 | 149,713 | 14,734,774 |
| Total | 33,085,827 | 32,934,785 | $ 222,173 | $ 222,173 | 32,934,785 |

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 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 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 57,013,463 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, 8,454,710 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 1,048,615 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 | 2,692,624 | $ 3.41 | 8.47 | $ 26,537 |
| Options Granted | 2,440,099 | 9.85 | | |
| Exercised | (68,199) | 1.02 | | |
| Cancelled | (561,349) | 3.87 | | |
| Balance at December 31, 2019 | 4,503,175 | $ 6.88 | 8.65 | $ 14,047 |
| Options Vested & Expected to Vest as of December 31, 2019 | 4,503,175 | $ 6.88 | 8.65 | $ 14,047 |
| Options Exercisable as of December 31, 2019 | 1,488,995 | $ 3.41 | 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 $3.84 and $6.79 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 | 15,193,494 | 15,735,244 |
| Net loss per share attributable to common stockholders, basic and diluted | $ (2.92) | $ (5.50) |

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) | 18,200,011 | 32,934,785 |
| Warrants to purchase convertible preferred stock (as converted to common stock) | 133,830 | 151,042 |
| Stock options to purchase common stock | 2,692,624 | 4,503,175 |
| Total | 21,026,465 | 37,589,002 |

**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 | 15,735,244 |
| Pro forma adjustment to reflect automatic conversion of convertible preferred stock into common stock upon the completion of the proposed IPO | 29,069,543 |
| Pro forma weighted-average shares of common stock outstanding, basic and diluted | 44,804,787 |
| Pro forma net loss per share attributable to common stockholders, basic and diluted | $ (1.94) |

**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.

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.

**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; 16,455,934 and 16,673,429 shares issued and outstanding at December 31, 2019 and March 31, 2020, respectively; 49,608,214 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 | $ (0.87) | $ (1.73) |
| Weighted-average shares of common stock, basic and diluted | 15,326,485 | 16,613,347 |
| Pro forma net loss per share attributable to common stockholders, basic and diluted | | $ (0.58) |
| Pro forma weighted-average shares of common stock outstanding, basic and diluted | | 49,548,132 |

*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 | 15,307,647 | $ 2 | (11,026) | $ — | $ (65,694) | $ (76,718) |
| Net loss | — | — | — | — | — | — | (13,334) | (13,334) |
| Issuance of common stock under employee stock compensation plans | — | — | 20,693 | — | 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 | 15,328,340 | $ 2 | $ (10,554) | $ — | $ (79,027) | $ (89,580) |
| Balance at January 1, 2020 | 32,934,785 | $222,173 | 16,455,934 | $ 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 | — | — | 217,495 | — | 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 | 16,673,429 | $ 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.

### *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.

**Poseida Therapeutics, Inc.**
**NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS—(Continued)**
**(Unaudited)**

***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 $15.27, 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 and the automatic conversion of warrants to purchase convertible preferred stock for warrants to purchase 151,042 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.

**Poseida Therapeutics, Inc.**
**NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS—(Continued)**
**(Unaudited)**

***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 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.

***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.

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## 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 |

## 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 |

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**NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS—(Continued)**
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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)

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 |

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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

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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.

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

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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 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%.

## 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 | 9,696,798 |
| Series A-1 Preferred Stock | 3,370,263 | 3,253,645 | 11,083 | 11,083 | 3,253,645 |
| Series B Preferred Stock | 5,283,992 | 5,249,568 | 30,314 | 30,314 | 5,249,568 |
| Series C Preferred Stock | 14,734,774 | 14,734,774 | 149,713 | 149,713 | 14,734,774 |
| Total | 33,085,827 | 32,934,785 | $ 222,173 | $ 222,173 | 32,934,785 |

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).

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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 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 57,013,463 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.

**Poseida Therapeutics, Inc.**
**NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS—(Continued)**
**(Unaudited)**

## 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 | 4,503,175 | $ 6.88 | 8.65 | |
| Options Granted | 557,600 | 9.82 | | |
| Exercised | (217,495) | 0.84 | | |
| Cancelled | (38,066) | 3.51 | | |
| Balance at March 31, 2020 | 4,805,214 | $ 7.52 | 8.71 | $ 11,500 |
| Options Vested & Expected to Vest as of March 31, 2020 | 4,805,214 | $ 7.52 | 8.71 | $ 11,500 |
| Options Exercisable as of March 31, 2020 | 1,473,311 | $ 4.16 | 7.26 | $ 8,438 |

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

**Poseida Therapeutics, Inc.**
**NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS—(Continued)**
**(Unaudited)**

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.

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.

**Poseida Therapeutics, Inc.**
**NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS—(Continued)**
**(Unaudited)**

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.

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.

**Poseida Therapeutics, Inc.**
**NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS—(Continued)**
**(Unaudited)**

***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 | 15,326,485 | 16,613,347 |
| Net loss per share attributable to common stockholders, basic and diluted | $ (0.87) | $ (1.73) |

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) | 26,657,769 | 32,934,785 |
| Warrants to purchase convertible preferred stock (as converted to common stock) | 151,042 | 151,042 |
| Stock options to purchase common stock | 2,749,784 | 4,805,214 |
| | 29,558,595 | 37,891,041 |

**Poseida Therapeutics, Inc.**
**NOTES TO CONDENSED 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 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 | 16,613,347 |
| Pro forma adjustment to reflect automatic conversion of convertible preferred stock into common stock upon the completion of the proposed IPO | 32,934,785 |
| Pro forma weighted-average common stock outstanding, basic and diluted | 49,548,132 |
| Pro forma net loss per share attributable to common stockholders, basic and diluted | $ (0.58) |

**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 May 27, 2020, the date on which those financial statements were issued.

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.

# 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 | $ |
| FINRA filing fee | * |
| Nasdaq Global Select Market listing fee | * |
| Legal fees and expenses | * |
| Accounting fees and expenses | * |
| Printing and engraving expenses | * |
| Transfer agent and registrar fees and expenses | * |
| Miscellaneous expenses | * |
| Total | $ * |

* To be filed by amendment.

### 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 116,618 shares of the Registrant's common stock at an exercise price of $3.43 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 601 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 17,212 shares of common stock at an exercise price of $5.81 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 17,212 shares of common stock at an exercise price of $5.81 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 1,080,088 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) 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 4,844,940 shares of common stock to its employees, directors and consultants, at a weighted-average exercise price of $7.87 per share. Through the effective date of this registration statement, 1,798,048 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 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 March 19, 2019. |
| 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+^# | Executive Employment Agreement, by and between the Registrant and Eric Ostertag, dated June 1, 2015. |
| 10.6+^# | Executive Employment Agreement, by and between the Registrant and Mark Gergen, dated February 19, 2018. |
| 10.7+^# | Offer Letter, by and between the Registrant and Matthew Spear, dated June 13, 2016. |
| 10.8+^# | Offer Letter, by and between the Registrant and Kerry Ingalls, dated July 29, 2019. |
| 10.9+^# | Offer Letter, by and between the Registrant and Johanna Mylet, dated June 8, 2015. |
| 10.10+† | Poseida Therapeutics, Inc. Non-Employee Director Compensation Policy. |
| 10.11*# | License Agreement, by and between the Registrant and Janssen Biotech, Inc., effective August 3, 2015. |
| 10.12*# | Commercial License Agreement, by and between the Registrant and TeneoBio, Inc., effective April 27, 2017. |
| 10.13*# | Commercial License Agreement, by and between the Registrant and TeneoBio, Inc., effective August 3, 2018. |
| 10.14*# | License Agreement, by and between the Registrant and Helmholtz-Zentrum München—Deutsches Forschungszentrum für Gesundheit und Umwelt GmbH, effective May 20, 2016. |
| 10.15* | License Agreement, by and between the Registrant and Genus Oncology, LLC, effective October 24, 2019. |
| 10.16# | 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 and January 3, 2019. |
| 10.17 | 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. |
| 10.18# | 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. |

† To be filed by amendment.
^ 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.
# Previously submitted.

***(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 day of , 2020.

POSEIDA THERAPEUTICS, INC.

Eric Ostertag, M.D., Ph.D.
*President and Chief Executive Officer*

KNOW ALL BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Eric Ostertag, M.D., Ph.D. and Mark J. Gergen, J.D. and each of them as his true and lawful attorneys-in-fact and agents, each with the full power of substitution, for him in his name, place or stead, in any and all capacities, to sign any and all amendments to this Registration Statement (including post-effective amendments), and to sign any registration statement for the same offering covered by this Registration Statement that is to be effective upon filing pursuant to Rule 462(b) promulgated under the Securities Act of 1933, and all post-effective amendments thereto, and to file the same, with exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming that said attorneys-in-fact and agents, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

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 |
|---|---|---|
| Eric Ostertag, M.D., Ph.D. | President, Chief Executive Officer and Director *(Principal Executive Officer)* | , 2020 |
| Mark J. Gergen, J.D. | Chief Business and Financial Officer and Director *(Principal Financial Officer)* | , 2020 |
| Johanna M. Mylet, C.P.A. | Vice President, Finance *(Principal Accounting Officer)* | , 2020 |
| David Hirsch, M.D., Ph.D. | Director | , 2020 |
| Sean Murphy | Director | , 2020 |
| John P. Schmid, M.B.A. | Director | , 2020 |
| Catherine J. Mackey, Ph.D. | Director | , 2020 |
| Marcea B. Lloyd, J.D. | Director | , 2020 |

**Exhibit 10.15**

**CERTAIN CONFIDENTIAL INFORMATION CONTAINED IN THIS DOCUMENT, MARKED BY [***], HAS BEEN OMITTED BECAUSE IT IS BOTH (I) NOT MATERIAL AND (II) WOULD BE COMPETITIVELY HARMFUL IF PUBLICLY DISCLOSED.**

EXECUTION VERSION

# LICENSE AGREEMENT

This **LICENSE AGREEMENT** (the "**Agreement**") is made and entered into effective as of October 24, 2019 (the "**Effective Date**"), by and between **GENUS ONCOLOGY, LLC**, a Delaware limited liability company ("**Genus**"), having a place of business at 650 Albany Street, Boston, MA 02118, and **POSEIDA THERAPEUTICS, INC.**, a Delaware corporation ("**Poseida**"), having a place of business at 4242 Campus Point Court, Suite 700, San Diego, CA 92121. Genus and Poseida are sometimes referred to herein individually as a "**Party**" and collectively as the "**Parties**".

## RECITALS

**WHEREAS,** Genus has developed or otherwise controls certain intellectual property related to antibodies targeting mucin 1, cell surface associated (as defined below, "MUC1");

**WHEREAS,** Poseida is a biopharmaceutical company engaged in the development of gene and cell therapies for cancer and other disorders, including chimeric antigen receptor T cells and NK cells; and

**WHEREAS,** Genus desires to grant Poseida an exclusive license, and Poseida desires to obtain from Genus an exclusive license, to develop and commercialize CAR cells expressing antibodies and derivatives thereof targeting MUC1, on the terms and conditions set forth in this Agreement.

**NOW THEREFORE,** in consideration of the foregoing and the covenants and promises contained herein, the parties agree as follows:

## ARTICLE 1

## DEFINITIONS

As used herein, the following terms shall have the following meanings:

**1.1** "**Acquirer**" means, collectively: (a) any Third Party that, after the closing of a change of control, controls Genus; and (b) such Third Party's Affiliates existing immediately prior to the closing of such change of control. For the purposes of this definition, change of control means (a) a merger, reorganization or consolidation of Genus with or into a Third Party which results in the voting securities of Genus outstanding immediately prior thereto ceasing to represent at least fifty percent (50%) of the combined voting power of the surviving entity or the ultimate parent of the surviving entity immediately after such merger, reorganization or consolidation, (b) a Third Party becoming the beneficial owner of fifty percent (50%) or more of the combined voting power of the outstanding securities of Genus other than as a result of a *bona fide* financing transaction of Genus or (c) the sale or other transfer to a Third Party of all or substantially all of Genus's business or assets to which this Agreement relates.

**1.2** "**Affiliate**" means, with respect to a particular Party, a person, corporation, partnership or other entity that controls, is controlled by or is under common control with such Party. For the purposes of this definition, the word "control" (including, with correlative meaning,

the terms "controlled by" or "under common control with") means the actual power, either directly or indirectly through one or more intermediaries, to direct or cause the direction of the management and policies of such entity, whether by the ownership of fifty percent (50%) or more of the voting stock of such entity or by contract or otherwise.

**1.3** "**Antibody**" means (a) any sequence of the variable region of the light chain or the heavy chain of any antibody that (i) is claimed or disclosed in any of the Patents set forth on Exhibit A or (ii) targets MUC1 and is Controlled by Genus or its Affiliates at any time during the Term, (b) any fragment, derivative or modification of any of the foregoing that targets MUC1, including any recombinant version, chimera or humanized derivative, or fusion or conjugate with any other molecule, and that is claimed or disclosed in any Patent Controlled by Genus, or (c) any nucleic acid consisting of a sequence of nucleotides encoding (or complementary to a nucleic acid encoding) any one of the molecules described in the preceding clauses (a) or (b), where such nucleotide is claimed or disclosed in any Patent Controlled by Genus.

**1.4** "**BLA**" means (a) a Biologics License Application filed with the FDA for marketing approval of a Licensed Cell Product, or any successor applications or procedures, and all supplements and amendments that may be filed with respect to the foregoing, and (b) similar filings outside the United States with applicable Regulatory Authorities, including the EMA. BLA excludes pricing and reimbursement approvals.

**1.5** "**Calendar Quarter**" means a period of three (3) consecutive months corresponding to the calendar quarters commencing on the first day of January, April, July, or October, or any partial period thereof immediately following the Effective Date or immediately prior to the termination or expiration of this Agreement.

**1.6** "**Calendar Year**" means a period of twelve (12) consecutive months corresponding to the calendar year commencing on the first day of January, or any partial period thereof immediately following the Effective Date or immediately prior to the termination or expiration of this Agreement.

**1.7** "**CAR**" means a genetically engineered molecule that, when present on the surface of human cells, enables such cells to recognize and bind to specific antigens that are present on the surface of other cells and that includes at least: (a) […***…], (b) […***…] and (c) […***…].

**1.8** "**CAR Cell**" means any cell, including without limitation a T-lymphocyte or natural killer cell, that expresses or is capable of expressing a transgene encoding a CAR.

**1.9** "**Combination Product**" means a product in which […***…] (each, an "**Other Product**") that are […***…].

**1.10** "**Commercially Reasonable Efforts**" means, with respect to the efforts to be expended by Poseida to develop or commercialize a Licensed Product, the level of efforts and expenditure of resources […***…]

[…***…].

**1.11** "**Confidential Information**" means, with respect to a Party, all Information of such Party (in such capacity, the "**Disclosing Party**") that is disclosed to the other Party (in such capacity, the "**Receiving Party**") in connection with this Agreement, whether disclosed in oral, written, graphic or electronic form. All information disclosed by a Party pursuant to the Mutual Non-Disclosure Agreement between the Parties dated July 1, 2015 (the "**Confidentiality Agreement**") shall be deemed to be such Party's Confidential Information hereunder.

**1.12** "**Control**" means, with respect to any material, Information or intellectual property right, that a Party (a) owns or (b) has a license (other than a license granted to such Party under this Agreement) to such material, Information or intellectual property right and, in each case, has the ability to grant to the other Party access, a license or a sublicense (as applicable) to the foregoing on the terms and conditions set forth in this Agreement without violating the terms of any then-existing agreement or other legally enforceable arrangement with any Third Party.

**1.13** "**Cover**" means, with respect to a claim of a Patent in any country in the Territory and a Licensed Product, that such claim would (or, with respect to a claim in a pending patent application, would if such claim were to issue with the then-pending claims) be infringed, absent a license thereunder or ownership thereof, by the manufacture, use, offer for sale, sale or importation of such Licensed Product, including the Antibody in such Licensed Product, in such country.

**1.14** "**Covering Claim**" has the meaning set forth in Section 4.4(b).

**1.15** "**DFCI**" means Dana-Farber Cancer Institute, Inc., a Massachusetts non-profit organization.

**1.16** "**DFCI Agreement**" means that certain License and Exclusive Sublicense Agreement dated April 10, 2007, as amended prior to the Effective Date or thereafter in accordance with the terms of this Agreement, by and between DFCI and Genus. The DFCI Agreement, as in existence as of the Effective Date, is attached hereto as Exhibit B.

**1.17** "**DFCI Patents**" means any and all Licensed Patents that are licensed to Genus by DFCI under the DFCI Agreement.

**1.18** "**Disclosing Party**" has the meaning set forth in Section 1.11.

***Certain Confidential Information Omitted

**1.19** "**Dollar**" means a U.S. dollar, and "**$**" shall be interpreted accordingly.

**1.20** "**EMA**" means the European Medicines Agency or any successor entity.

**1.21** "**FDA**" means the United States Food and Drug Administration or any successor entity.

**1.22** "**Field**" means use of CAR Cells for treatment, prevention and palliation of human diseases and conditions.

**1.23** "**First Commercial Sale**" means, with respect to a Licensed Product and regulatory jurisdiction, the first transfer to a Third Party of such Licensed Product in such regulatory jurisdiction after Regulatory Approval has been obtained in such jurisdiction for such Licensed Product for which Net Sales are generated.

**1.24** "**GLP**" means the then-current good laboratory practice standards promulgated or endorsed by the FDA as defined in 21 C.F.R. Part 58.

**1.25** "**Governmental Authority**" means any multi-national, federal, state, local, municipal, provincial or other governmental authority of any nature (including any governmental division, prefecture, subdivision, department, agency, bureau, branch, office, commission, council, court or other tribunal).

**1.26** "**Indication**" means a human disease or medical condition that is approved by a Regulatory Authority to be included as a discrete claim (as opposed to a subset of a claim) in the labeling of a Licensed Product based on: […***…].

**1.27** "**Information**" means any data, results and information of any type whatsoever, in any tangible or intangible form, including know-how, trade secrets, practices, techniques, methods, processes, inventions, developments, specifications, formulations, formulae, materials or compositions of matter of any type or kind (patentable or otherwise), software, algorithms, marketing reports, expertise, stability, technology, test data including pharmacological, biological, chemical, biochemical, toxicological and clinical test data, analytical and quality control data, stability data, studies and procedures.

***Certain Confidential Information Omitted

**1.28** "**Initiation**" means, with respect to a clinical trial, first dosing of the first subject in such clinical trial.

**1.29** "**Initiation of GLP Tox**" means the first dosing of an animal in the first non-clinical study of a Licensed Cell Product conducted in accordance with GLP.

**1.30** "**Joint Inventions**" has the meaning set forth in Section 6.1.

**1.31** "**Joint Patents**" has the meaning set forth in Section 6.1.

**1.32** **"Laws"** means all laws, statutes, rules, regulations, ordinances and other pronouncements having the effect of law of any federal, national, multinational, state, provincial, county, city or other political subdivision, domestic or foreign.

**1.33** "**Licensed Cell Patent**" means a Licensed Patent that Covers a Licensed Cell Product.

**1.34** "**Licensed Know-How**" means all Information that is: (a) Controlled by Genus or its Affiliates (excluding an Acquirer) as of the Effective Date or during the Option Period; (b) disclosed to Poseida prior to […***…] days after Poseida's exercise of the Option; and (c) necessary to develop, manufacture or commercialize any Licensed Product, but excluding the Joint Inventions.

**1.35** "**Licensed Patent**" means any Patent that: (a) is Controlled by Genus or its Affiliates, as of the Effective Date or at any time during the Term; provided however, Licensed Patent excludes any Patent Controlled by an Acquirer that that is not an improvement or modification of any Patent Controlled by Genus or its Affiliates immediately prior to the closing of the change of control; and (b) Covers development, manufacture, use, sale, offer for sale, or import of any Licensed Product, but excluding the Joint Patents. Licensed Patents include all Patents listed on Exhibit A.

**1.36** "**Licensed Product**" means (a) a product that incorporates, uses or administers a CAR Cell, alone or with one or more other active ingredients (a "**Licensed Cell Product**") or (b) any diagnostic device, assay or test performed for the purpose of providing diagnostic or other information to determine whether use of a Licensed Cell Product is appropriate, safe or effective for a particular disease or condition (a "**Licensed Companion Diagnostic**").

**1.37** "**Licensed Technology**" means the Licensed Patents, the Licensed Know-How and Genus' interest in the Joint Inventions and Joint Patents.

**1.38** "**Major Market**" means any of the […***…].

**1.39** "**MUC1**" means mucin 1, a transmembrane mucin family protein consisting of highly conserved 20 amino acid repeats (HGVTSAPDTRPAPGSTAPPA) decorated with a dense O-linked glycosylation pattern.

***Certain Confidential Information Omitted

**1.40 Net Sales**.

(a) "**Net Sales**" means, with respect to any Licensed Product, the gross income derived by Poseida and its Affiliates and Sublicensees for sales or transfer of such Licensed Product in the Field to unaffiliated Third Parties (including distributors and end users), less the following deductions to the extent such deductions (A) are borne by Poseida, its Affiliates or Sublicensees and (B) are consistent with the accounting standards of the selling Person:

(i) […***…];

(ii) […***…];

(iii) […***…];

(iv) […***…];

(v) […***…]; and

(vi) […***…].

Net Sales includes the fair market value of any non-cash consideration from sale of Licensed Products received by Company, its Affiliates or Sublicensees.

Licensed Products are considered "sold" or "transferred" when billed, invoiced, or payment is received, whichever occurs first.

Notwithstanding the foregoing, amounts received or invoiced by Poseida or its Affiliates or Sublicensees for the sale of Licensed Products among Poseida and its Affiliates and Sublicensees shall not be included in the computation of Net Sales hereunder.

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Notwithstanding the foregoing, Net Sales shall not include any amounts invoiced for sales of Licensed Products supplied for use in clinical trials, or under early access, compassionate use, named patient, indigent access, patient assistance or other similar reduced pricing programs.

(b) In the event a Licensed Product is sold as part of a Combination Product, Net Sales for the purposes of determining payments hereunder shall be calculated as follows:

(i) […***…].

(ii) […***…].

(iii) […***…].

(iv) […***…].

(v) […***…].

**1.41** "**Option**" has the meaning set forth in Section 2.1(a).

**1.42** "**Option Period**" means the period of time commencing on the Effective Date and ending […***…] thereafter.

***Certain Confidential Information Omitted

**1.43** "**Patents**" means (a) pending patent applications, issued patents, utility models and designs; (b) reissues, substitutions, registrations, validations, re-examinations, continuations, continued prosecution applications, continuations-in-part or divisions of or to any of the foregoing; and (c) extensions, renewals or restorations of any of the foregoing by existing or future extension, renewal or restoration mechanisms, including supplementary protection certificates or the equivalent thereof.

**1.44** "**Person**" means an individual, sole proprietorship, partnership, limited partnership, limited liability partnership, corporation, limited liability company, business trust, joint stock company, trust, unincorporated association, joint venture or other similar entity or organization.

**1.45** "**Phase 2 Clinical Trial**" means a study in humans of the safety, dose range and efficacy of a Licensed Cell Product that is designed to generate sufficient data to commence a Phase 3 Clinical Trial pursuant to 21 C.F.R. 312.21 or corresponding provision outside the United States.

**1.46** "**Phase 3 Clinical Trial**" means a clinical trial on a sufficient number of patients that is designed to establish that a Licensed Cell Product is safe and efficacious for its intended use, or to define warnings, precautions and adverse reactions that are associated with the Licensed Cell Product in the dosage range to be prescribed, and to support Regulatory Approval of such Licensed Cell Product.

**1.47** "**Pricing Approval**" means such governmental approval, agreement, determination or decision establishing prices for a Licensed Product that can be charged and/or reimbursed in regulatory jurisdictions where the applicable Governmental Authorities approve or determine the price and/or reimbursement of pharmaceutical products.

**1.48** "**Product Infringement**" has the meaning set forth in Section 6.3(a).

**1.49** "**Receiving Party**" has the meaning set forth in Section 1.11.

**1.50** "**Regulatory Approval**" means all approvals, including, if applicable, Pricing Approvals, that are necessary for the commercial sale of a Licensed Product in the Field in a given country or regulatory jurisdiction.

**1.51** "**Regulatory Authority**" means, in a particular country or jurisdiction, any applicable Governmental Authority involved in granting Regulatory Approval in such country or jurisdiction.

**1.52** "**Regulatory Exclusivity**" means any exclusive marketing rights conferred by any Regulatory Authority with respect to a pharmaceutical product other than Patents, including orphan drug exclusivity, new chemical entity exclusivity or pediatric exclusivity.

**1.53** "**Representatives**" means directors, employees, officers, consultants and/or agents of the specified Person.

**1.54** "**Royalty Term**" has the meaning set forth in Section 4.4(b).

**1.55** "**Sublicensee**" means a Third Party that has received a sublicense from Poseida for some or all of the rights granted to Poseida under Section 2.2(b).

**1.56** "**Term**" has the meaning set forth in Section 10.1.

**1.57** "**Territory**" means all countries of the world.

**1.58** "**Third Party**" means a person or entity other than Genus or Poseida or their respective Affiliates.

**1.59** "**United States**" or "**U.S.**" means the United States of America, including its territories and possessions.

**1.60** "**Valid Claim**" means (a) a claim of an issued and unexpired patent that has not been revoked or held unenforceable, unpatentable or invalid by a decision of a court or other governmental agency of competent jurisdiction that is not appealable or has not been appealed within the time allowed for appeal, and that has not been abandoned, disclaimed, denied or admitted to be invalid or unenforceable through reissue, re-examination or disclaimer or otherwise, or (b) a claim of a pending patent application that has been pending less than five (5) years from the earliest date on which such patent application claims priority (direct or indirect, in whole or in part) and which claim was filed and is being prosecuted in good faith and has not been cancelled, withdrawn or abandoned or finally rejected by an administrative agency action from which no appeal can be taken.

## ARTICLE 2

## OPTION AND LICENSE GRANT

### 2.1 Option

(a) **Grant**. Subject to the terms and conditions of this Agreement, Genus hereby grants to Poseida an exclusive option during the Option Period to obtain the exclusive license set forth in Section 2.2(b) (the "**Option**").

(b) **Exercise**. Poseida may exercise the Option by providing written notice to Genus delivered at any time during the Option Period, and simultaneously paying to Genus the Option exercise fee pursuant to Section 4.2.

### 2.2 Licenses to Poseida.

(a) **During the Option Period**. Subject to the terms and conditions of this Agreement, Genus hereby grants to Poseida, during the Option Period, a non-exclusive, non-transferable (except in accordance with Section 12.10) license under the Licensed Technology to research, develop, make, use, import and have made Licensed Products in the Field in the Territory, solely for purposes of development of Licensed Products and preparation for clinical trials, but in

no event does this license include the right for Poseida to initiate a clinical trial or commercialize any Licensed Products. Poseida may grant sublicenses under such license only to its Affiliates and to Third Parties performing activities for or on behalf of Poseida.

(b) **Upon Option Exercise**. Subject to the terms and conditions of this Agreement, effective upon Poseida's exercise of the Option pursuant to Section 2.1(b), Genus hereby grants to Poseida: (i) an exclusive (even as to Genus), non-transferable (except in accordance with Section 12.10), royalty bearing license, with the right to grant sublicenses through multiple tiers (subject to Section 2.3), under the Licensed Patents and Joint Patents to research, develop, make, have made, use, import, offer for sale and sell Licensed Cell Products in the Field in the Territory; (ii) a non-exclusive, non-transferable (except in accordance with Section 12.10), royalty bearing license, with the right to grant sublicenses through multiple tiers (subject to Section 2.3), under the Licensed Patents and Joint Patents to research, develop, make, have made, use, import, offer for sale and sell Licensed Companion Diagnostics in the Field in the Territory; and (iii) a non-exclusive, non-transferable (except in accordance with Section 12.10), royalty bearing license, with the right to grant sublicenses (subject to Section 2.3), under the Licensed Know-How and Joint Inventions, to research, develop, make, have made, use, import, offer for sale and sell Licensed Products in the Field in the Territory.

**2.3 Sublicenses**. Poseida shall have the right to grant sublicenses through multiple tiers under any or all of the rights granted in Section 2.2(b) to its Affiliates and to Third Parties, provided that Poseida shall notify DFCI […***…] days prior to the execution of any further sublicense of the DFCI Patents under this Section 2.3 (a "**DFCI Sublicense**"). Genus shall provide all reasonable assistance to Poseida to provide such notification to DFCI. Each such sublicense shall be consistent with and subject to the terms and conditions of this Agreement, and Poseida remains responsible for the operations of any Sublicensee under this Agreement as if the operations were carried out by Poseida.

(a) Notice. Poseida shall promptly notify Genus in writing of the identity of any prospective Sublicensee at least […***…] days prior to entering into a sublicense.

(b) Form and Content of Sublicenses. Poseida will issue any sublicenses granted by it under this Agreement in writing. Poseida will attach a copy of the DFCI Agreement to any DFCI Sublicense. In the event that Genus terminates this Agreement pursuant to Section 10.3, each sublicense granted by Poseida to a Third Party will be treated in accordance with Section 10.4(b). Poseida shall include the equivalent of at least the following provisions in all sublicenses:

(i) Sublicensee shall use […***…] efforts to diligently pursue the commercialization of the Licensed Patents, consistent with the obligations of Poseida under this Agreement, and shall report annually to Poseida on its operations under the sublicense;

(ii) Sublicensee shall make payments due to Poseida in relation to Net Sales of Licensed Products in a timely manner, so that Poseida may comply with Article 4 of this Agreement; and

(iii) With respect to DFCI Sublicenses, the following provisions of the DFCI Agreement: Paragraph 2.5 (Reserved Rights), Paragraph 2.6 (Sublicensing), Sections 5.2.1 (Books and Records) and 5.2.2 (Inspections), Paragraphs 6.2 – 6.6 (U.S. Manufacture, Other Government Laws, Patent Marking, Publicity – Use of Name, Confidentiality), Article 7 (Patent Preparation, Filing, Prosecution and Maintenance), Article 8 (Patent Infringement and Enforcement), Section 9.5.4 (Termination – Sublicenses), Article 10 (Indemnification, Defense and Insurance), Article 11 (Warranties), and Article 14 (Dispute Resolution).

(c) Copies of Sublicenses to Genus. Poseida shall forward to Genus a copy of any and all fully executed sublicenses, provided that Poseida may redact any terms thereof that are not necessary to ensure compliance with the terms of this Agreement or the DFCI Agreement. Such copy shall be postmarked within […***…] days of the execution of the sublicense. Poseida shall also forward to Genus annually a copy of the reports received by Poseida from all Sublicensee(s) during the preceding […***…] month period under the sublicenses as shall be pertinent to (i) its operations under the Sublicense, and (ii) a royalty accounting under the sublicense. All such copies will be Poseida's Confidential Information.

(d) Ongoing Obligations. Nothing in this Section 2.3 may be construed to relieve Poseida of its obligations to Genus under this Agreement.

**2.4 No Implied Licenses**. Except as explicitly set forth in this Agreement, neither Party shall be deemed by estoppel or implication to have granted the other Party any license or other right to any intellectual property of such Party. Poseida acknowledges and agrees that the DFCI Patents are licensed to Genus by DFCI under that certain DFCI Agreement. Poseida agrees that, notwithstanding any exclusive license granted to Poseida under this Agreement, (a) DFCI retains rights under the DFCI Patents as set forth in Section 2.5, and (b) any licenses and rights granted by Genus to Poseida under the DFCI Patents are granted only within the permissible scope of sublicenses granted under the DFCI Agreement.

**2.5 Reserved Rights**. The licenses granted by Genus under the DFCI Patents are subject to the following reserved rights:

(a) The rights of the United States of America, as set forth in Public Laws 96-517 and 98-620, the regulations promulgated thereunder, and the policy of any funding agencies. Any rights granted hereunder, which are greater than permitted by Public Laws 96-517 and 98-620, are subject to modifications as required to conform to the provisions of those statutes.

(b) DFCI's right to make and use the Licensed Intellectual Property defined in the DFCI Agreement (the "**DFCI Licensed Intellectual Property**") in the Field solely for teaching, education and other non-commercial research purposes, both laboratory and clinical.

(c) The rights of other academic, governmental or not-for-profit organizations to use DFCI Licensed Intellectual Property solely for non-commercial research purposes in the Field.

***Certain Confidential Information Omitted

(d) DFCI's right to grant non-exclusive, non-transferable licenses under the DFCI Patents to other academic, governmental or not-for-profit organizations to make and use DFCI Licensed Intellectual Property solely for non-commercial research purposes in the Field.

Provided that with respect to rights reserved under this Section 2.5, DFCI has agreed that: (i) any rights under the DFCI Licensed Intellectual Property granted to a Third Party shall be pursuant to a Material Transfer Agreement substantially in the form as shown on Schedule 9 to the DFCI Agreement and (ii) no rights will be granted to Third Parties to commercialize products Covered by the DFCI Patents.

**2.6 Upstream License Terms**. Poseida acknowledges and agrees that the rights and licenses granted under this Agreement with respect to the DFCI Patents are subject to the following provisions of the DFCI License Agreement (the "**Upstream License Required Terms**"): Paragraph 2.5 (Reserved Rights), Paragraph 2.6 (Sublicensing), Sections 5.2.1 (Books and Records) and 5.2.2 (Inspections), Paragraphs 6.2 – 6.6 (U.S. Manufacture, Other Government Laws, Patent Marking, Publicity – Use of Name, Confidentiality), Article 7 (Patent Preparation, Filing, Prosecution and Maintenance), Article 8 (Patent Infringement and Enforcement), Section 9.5.4 (Termination – Sublicenses), Article 10 (Indemnification, Defense and Insurance), Article 11 (Warranties), and Article 14 (Dispute Resolution). In the event of any inconsistency with the terms of this Agreement and the Upstream License Required Terms with respect to the DFCI Patents, the Upstream License Required Terms will control.

**2.7 U.S. Manufacture**. Poseida shall manufacture Licensed Products Covered by DFCI Patents ("**DFCI Products**") leased, used, or sold in the United States substantially in the United States as required by 35 U.S.C. § 204 and 37 C.F.R. § 401 *et seq.*, as amended, unless a waiver of such requirement is obtained. Genus will reasonably assist Poseida in obtaining any such waiver. Poseida shall require any Affiliate(s) or Sublicensee(s) to comply with the U.S. manufacture requirement(s).

**2.8 Other Government Laws**. Poseida shall comply with, and ensure that its Affiliates and Sublicensees comply with, all applicable government statutes and regulations that relate to Licensed Products.

**2.9 Patent Marking**. Poseida shall mark, and shall require its Sublicensees and Affiliates to mark, all DFCI Products sold in the United States with the word "Patent" and the number or numbers of DFCI Patents applicable to the DFCI Product.

**2.10 Publicity – Use of Name (DFCI)**. Except as required by applicable law or regulation, Poseida, its Affiliates and Sublicensees are not permitted to use the names of DFCI, its related entities or its employees, or any adaptation thereof, in any advertising, promotional or sales literature, or in any securities report required by the Securities and Exchange Commission (except as required by law), without the prior written consent of DFCI. To the extent relevant to the rights granted to Poseida under the DFCI Patents, Poseida may: (a) refer to publications in the scientific literature by employees of DFCI; or (b) state that a sublicense from DFCI has been granted as provided in this Agreement.

**2.11 Compliance with DFCI Agreement**.

(a) Genus shall not take (or fail to take) any action, including failure to pay any amounts when due, that constitutes a breach of the DFCI Agreement. Genus shall not, without the prior written consent of Poseida, take (or fail to take) any action with respect to the DFCI Agreement (including amending, terminating or otherwise modifying) that would reasonably be expected to diminish the rights granted to Poseida under this Agreement.

(b) Genus shall use […***…] efforts to enforce its rights and DFCI's obligations under the DFCI Agreement to the extent required for Poseida to exercise its rights with respect to the DFCI Patents under this Agreement.

(c) Genus shall not assign (except an assignment to a party to which this Agreement has been assigned as permitted under Section 12.10) the DFCI Agreement without the prior written consent of Poseida, not to be unreasonably withheld.

(d) Genus shall provide Poseida with prompt written notice of any written allegation of breach or notice of termination of the DFCI Agreement, made by any of Genus, its Affiliate or DFCI.

(e) In the event that Genus or its Affiliate receives written notice of an alleged breach by Genus or its Affiliate under the DFCI Agreement, where termination of the DFCI Agreement or any diminishment of the licenses granted to Poseida under the DFCI Patents is being or could be sought by DFCI, then Genus will promptly provide to Poseida written notice thereof as well as whether Genus elects to cure such alleged breach. In the event that Genus elects not to cure such alleged breach, Genus shall grant Poseida the right (but not the obligation) to cure such alleged breach, and if Poseida elects to and does cure such breach, then Poseida may offset any such reasonable costs and expenses incurred by or on behalf of Poseida or any of its Affiliates in connection with curing such breach against Poseida's future payment obligations to Genus under this Agreement.

## ARTICLE 3

## TECHNOLOGY TRANSFER; DEVELOPMENT AND COMMERCIALIZATION

**3.1 Transfer of Licensed Know-How.** Genus will work with Poseida in good faith in the […***…] days after the Effective Date, and in the […***…] days after expiration of the Option Period, to transfer to Poseida any and all Licensed Know-How in existence as of the Effective Date and at the end of the Option Period, respectively, including all Antibody sequences therein or in the Licensed Patents that have not previously been disclosed to Poseida.

**3.2 Development and Commercialization of Licensed Products**. As between the Parties, Poseida shall have sole control, authority, and discretion over the research, development, manufacture and commercialization of Licensed Products in the Field in the Territory, subject to Section 3.3.

***Certain Confidential Information Omitted

**3.3 Diligence.** Poseida shall use Commercially Reasonable Efforts to research, develop and commercialize at least one Licensed Cell Product in the Field in the Territory, whether alone or with or through one (1) or more Affiliates or Sublicensees. For purposes of this Section 3.3, the efforts of each Affiliate or Sublicensee shall be considered efforts of Poseida. On or before the thirtieth day following the end of each Calendar Year of the Term prior to the First Commercial Sale of a Licensed Cell Product, Poseida shall provide to Genus a written report describing the efforts by Poseida, or any Affiliates or Sublicensees, to meet the diligence requirements described in this Section 3.3.

## ARTICLE 4

## FINANCIAL TERMS

**4.1 Upfront Payment**. Within ten (10) business days after the Effective Date, Poseida shall pay to Genus a one-time upfront payment of One Million Five Hundred Thousand Dollars ($1,500,000).

**4.2 Option Exercise Fee**. On that date on which Poseida exercises the Option pursuant to Section 2.1(b), Poseida shall pay to Genus a one-time Option exercise fee of One Million Five Hundred Thousand Dollars ($1,500,000).

**4.3 Development, Regulatory and Sales Milestone Payments.** Poseida shall promptly notify Genus, but in any event within (a) […***…] days after the first achievement of each of the first six (6) milestone events in the table below and (b) […***…] days after the end of the Calendar Year in which each of the last three (3) milestone events in the table below is achieved. Thereafter, Genus may invoice Poseida for the corresponding milestone payment, and Poseida shall pay such invoice within […***…] days after receipt thereof.

| Milestone Event | Milestone Payment |
|---|---|
| [...***...] | $ [...***...] |
| [...***...] | $ [...***...] |
| [...***...] | $ [...***...] |
| [...***...] | $ [...***...] |
| [...***...] | $ [...***...] |

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| Milestone Event | Milestone Payment |
|---|---|
| [...***...] | $ [...***...] |
| [...***...] | $ [...***...] |
| [...***...] | $ [...***...] |
| [...***...] | $ [...***...] |

Each milestone payment set forth above shall be payable only once, regardless of the number of times the applicable milestone event is achieved by any Licensed Cell Product or Licensed Products, as applicable, and regardless of the number of Licensed Cell Products or Licensed Products to achieve the applicable milestone event. Under no circumstances shall Poseida be obligated to pay Genus more than seventy-one million Dollars ($71,000,000) under this Section 4.3.

**4.4 Royalties.**

**(a) Royalty Rates**. Subject to Sections 4.4(b)-(c), Poseida shall pay to Genus royalties on Net Sales of each Licensed Product during the applicable Royalty Term, with the applicable royalty to be calculated on a Related Licensed Product-by-Related Licensed Product basis (as described below) by multiplying the applicable royalty rate by the corresponding amount of incremental Net Sales of the Related Licensed Products in the Field in the Territory in each Calendar Year. Solely for purposes of this Section 4.4, a Licensed Cell Product will be considered different from another Licensed Cell Product if they contain CAR Cells that are different cell types or that are engineered to express different receptors. For each Licensed Cell Product, the Net Sales of the related Licensed Companion Diagnostic, if any, will be combined together with the Net Sales of such Licensed Cell Product (each such Licensed Cell Product together with the related Licensed Companion Diagnostic, if any, are referred to together as the "**Related Licensed Products**") for purposes of determining the aggregate, worldwide Net Sales in the table below.

| Annual Net Sales of each Related Licensed Product in the Territory | Royalty Rate |
|---|---|
| [...***...] | [...***...]% |

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| | |
|---|---|
| [...***...] | [...***...]% |
| [...***...] | [...***...]% |
| [...***...] | [...***...]% |

**(b) Royalty Term.** Royalties shall be paid under this Section 4.4, on a country-by-country and Related Licensed Product-by-Related Licensed Product basis, on Net Sales during the period of time beginning on the First Commercial Sale of such Related Licensed Product in such country and continuing until the later of: (i) the expiration of the last-to-expire Valid Claim of the Licensed Patents Covering the applicable Licensed Cell Product in the country of sale (a "**Covering Claim**" in such country for such Licensed Cell Product); (ii) expiration of all Regulatory Exclusivity for such Licensed Cell Product in such country; and (iii) ten (10) years after the First Commercial Sale of such Licensed Cell Product in such country (the "**Royalty Term**").

**(c)** Poseida may make the following reductions in the running royalties due to Genus in the event of the following circumstances, provided that no single royalty payment to Genus for any Calendar Quarter will be reduced by more than […***…] of the amounts that would have otherwise been due under Section 4.4(a):

**(i) Know-How Reduction**. In the event that, during the Royalty Term for any Related Licensed Product and country, no Covering Claim exists for the corresponding Licensed Cell Product in such country, then the royalties payable under Section 4.4(a) on Net Sales of such Licensed Cell Product in such country will be reduced by […***…] for the remainder of such Royalty Term. Such royalty reduction will be calculated by determining the portion of total Net Sales of the relevant Related Licensed Product in a Calendar Quarter that is attributable to the country in which such reduction applies, and by determining the total royalties for the Territory for such Related Licensed Product without reduction, and then reducing by […***…] the applicable portion (based on Net Sales) of such total royalties attributable to the country in which such reduction applies.

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**(ii) Third Party Intellectual Property**. Poseida may deduct from any royalties payable to Genus under Section 4.4(a), […***…] of all consideration paid by Poseida or its Affiliates or Sublicensees for any rights to Third Party intellectual property used in the Licensed Cell Product (including its development and manufacture) that is necessary to commercialize such Licensed Cell Product. Poseida may carry forward to subsequent calendar quarters any deductions that it was not able to deduct as a result of the proviso in the first sentence of this Section 4.4(c).

## ARTICLE 5

## PAYMENTS, RECORDS, AUDIT

**5.1 Payments.** All amounts payable to Genus under this Agreement shall be paid in Dollars by check or by wire transfer to a bank account specified in writing by Genus.

**5.2 Reports.** Within […***…] days after the end of each Calendar Quarter of any Calendar Year, following the First Commercial Sale of any Licensed Product during the Term, Poseida shall deliver to Genus a statement, on a country-by-country and Licensed Product-by-Licensed Product basis, of the following:

(a) a list of the Licensed Products manufactured and sold by Poseida, and any Affiliates or Sublicensees, on a country-by-country and Licensed Product-by-Licensed Product basis;

(b) the amount of gross sales and Net Sales of each of the Licensed Products during the applicable calendar quarter;

(c) the deductions applicable to calculating Net Sales (including if such Licensed Product is a Combination Product);

(d) an itemized accounting of the calculation of the amount of the royalty payment due on such Net Sales for such calendar quarter, including (i) a description of any reductions under Section 4.4(c), and (ii) a revised calculation of the payment due after the application of such offsets.

Along with such royalty report, Poseida shall pay Genus the royalties due for such Calendar Quarter. If no royalties are due, Poseida shall so report.

After the date of First Commercial Sale in any country, Poseida shall deliver to Genus a summary within […***…] months after such First Commercial Sale providing the activities of Poseida, and any Affiliates and Sublicensees directed toward promoting the sale of Licensed Products in the Territory.

**5.3 Exchange Rate.** For Net Sales outside the United States, the rate of exchange to be used in computing the amount of currency equivalent in United States dollars shall be made at the rate of exchange published in the *Wall Street Journal*, *Western Edition* on the last business day of the applicable Calendar Quarter.

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**5.4 Books and Records.** Poseida shall keep accurate books and accounts of record in connection with its sales of Licensed Products in sufficient detail to permit verification of Poseida's payments pursuant to Sections 4.3 and 4.4. Poseida shall require its Affiliates and Sublicensees to keep accurate books and accounts of records in connection with their sales of Licensed Products for which a royalty is due hereunder. Poseida shall maintain its records for a period of […***…] years from the end of the calendar quarter in which such sales occurred.

**5.5 Audit.** Genus or DFCI, […***…], through an independent, nationally recognized certified public accountant chosen by Genus or DFCI (and reasonably acceptable to Poseida), shall have the right to access Poseida's relevant books and records for the sole purpose of verifying Poseida's payments to Genus pursuant to Section 4.3 and 4.4 during any portion or all of the preceding […***…] years; such access shall be conducted after reasonable prior notice by Genus to Poseida during Poseida's ordinary business hours, shall not be more frequent than once during any calendar year and shall not include any books and records that were previously accessed pursuant to this Section 5.5. Such accountant shall execute a confidentiality agreement with Poseida in customary form and shall only disclose to Genus or DFCI whether Poseida paid Genus the correct amounts pursuant to Section 4.3 or 4.4 during the audit period and if not, any information necessary to explain the source of the discrepancy. If such audit determines that Poseida paid Genus less than the amount properly due and such determination is not subject to a good faith dispute, then Poseida shall promptly pay Genus an amount equal to such underpayment plus interest as set forth in Section 5.7, and if the amount underpaid exceeds […***…] of the amount actually due over the audited period, Poseida shall also reimburse Genus (or DFCI) for the reasonable costs of such audit (including the fees and expenses of the certified public accountant). In the event such audit determines that Poseida paid Genus more than the amount properly due, then Genus shall promptly issue a refund to Poseida of such overpayment. Poseida shall require its Affiliates and Sublicensees to make their records available for inspection by Genus or DFCI in accordance with this Section 5.5.

**5.6 Withholding of Taxes.** Poseida shall pay all amounts payable to Genus under this Agreement in United States funds […***…] deduction for taxes, exchange, collection or other charges that may be imposed by any country or political subdivision with respect to any amounts payable to Genus under this Agreement as a result of any action of Poseida or any successor in interest to Poseida. […***…].

**5.7 Interest.** Any payment owed to Genus under this Agreement that is not made when due will accrue interest beginning on the first day following the due date specified in Article 4 and such interest payment will be due immediately but in no event later than the payment of the overdue amount to Genus. The interest will be calculated at the annual rate of the sum of (a) […***…] plus (b) […***…], the interest being compounded on the last day of each Calendar Quarter; provided that the annual rate may not exceed the maximum legal interest rate permitted by applicable Law. The payment of interest as required by this Section 5.7 does not foreclose or in any way limit Genus from exercising any other rights or remedies it has as a consequence of the lateness of any payment.

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## ARTICLE 6

## INTELLECTUAL PROPERTY

**6.1 Ownership of Inventions.** Ownership of Information, whether or not patentable, made in the course of performing activities under this Agreement, including all intellectual property rights therein, shall be as follows: (a) Poseida shall own all Information made solely by employees, agents or independent contractors of Poseida, (b) Genus shall own all Information made solely by employees, agents or independent contractors of Genus, and (c) the Parties shall jointly own all Information made jointly by employees, agents or independent contractors of each Party ("**Joint Inventions**"). All Patents claiming patentable Joint Inventions shall be referred to herein as "**Joint Patents**". Except to the extent either Party is restricted by the licenses granted to the other Party under this Agreement, each Party shall be entitled to practice, grant licenses to, assign and exploit the Joint Inventions and Joint Patents without the duty of accounting or seeking consent from the other Party.

**6.2 Prosecution of Patents.**

(a) **Licensed Patents**.

(i) Subject to Section 6.2(a)(ii), Genus shall be responsible for and control the preparation, filing, prosecution and maintenance of all patents and patent applications within the Licensed Patents, […***…]; provided, however, that Genus shall, to the extent relevant to Licensed Cell Products in the Field in the Territory: (A) provide all information reasonably requested by Poseida with respect to the Licensed Cell Patents, (B) promptly notify Poseida in writing with respect to all significant developments regarding the Licensed Cell Patents, (C) promptly provide Poseida with a copy of each material communication from any patent authority regarding the Licensed Cell Patents, and (D) provide Poseida with drafts of each material filing (including draft patent applications and responses to office actions and similar filings) with respect to the Licensed Cell Patents a reasonable amount of time in advance of the anticipated filing date and shall, prior to filing, consider Poseida's reasonable comments in good faith.

(ii) In the event that Genus determines not to file, maintain or continue prosecution of any patent or patent application within the Licensed Cell Patents, Genus shall provide Poseida written notice thereof at least […***…] days before the applicable deadline. Upon receipt of such notice, Poseida shall have the right, but not the obligation, at its expense, to assume responsibility for filing, prosecuting, and maintaining such patents and patent applications. If Poseida decides to assume such responsibility, in its sole discretion, it shall so notify Genus in writing.

(iii) As soon as practicable after receipt of the notice from Poseida described in Section 6.2(a)(ii), Genus shall transfer the existing, complete patent files for all applicable patents and patent applications to Poseida, shall file all documents necessary to transfer correspondence with the U.S. Patent and Trademark Office and other applicable patent authorities to Poseida and shall give Poseida's patent counsel power of attorney thereto. Genus shall cooperate

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with Poseida in the transfer of all prosecution and maintenance responsibilities relating to the Licensed Cell Patents.

(b) **Joint Patents**.

(i) Subject to Section 6.2(b)(ii), Poseida shall be responsible for and control the preparation, filing, prosecution and maintenance of all patents and patent applications within the Joint Patents, […***…]; provided, however, that Poseida shall (A) provide all information reasonably requested by Genus with respect to the Joint Patents, (B) promptly notify Genus in writing with respect to all significant developments regarding the Joint Patents, (C) promptly provide Genus with a copy of each material communication from any patent authority regarding the Joint Patents, and (D) provide Genus with drafts of each material filing (including draft patent applications and responses to office actions and similar filings) with respect to the Joint Patents a reasonable amount of time in advance of the anticipated filing date and shall, prior to filing, consider Genus' reasonable comments in good faith.

(ii) In the event that Poseida determines not to file, maintain or continue prosecution of any patent or patent application within the Joint Patents, Poseida shall provide Genus written notice thereof at least […***…] days before the applicable deadline. Upon receipt of such notice, Genus shall have the right, but not the obligation, at its expense, to assume responsibility for filing, prosecuting, and maintaining such patents and patent applications. If Genus decides to assume such responsibility, in its sole discretion, it shall so notify Poseida in writing.

(iii) As soon as practicable after receipt of the notice from Genus described in Section 6.2(b)(ii), Poseida shall transfer the existing, complete patent files for all applicable patents and patent applications to Genus, shall file all documents necessary to transfer correspondence with the U.S. Patent and Trademark Office and other applicable patent authorities to Genus and shall give Genus' patent counsel power of attorney thereto. Poseida shall cooperate with Genus in the transfer of all prosecution and maintenance responsibilities relating to the Joint Patents.

(c) **Cooperation**. Each Party shall fully cooperate with the other Party to execute all lawful papers and instruments and to make all rightful oaths and declarations as may be necessary or useful in the preparation and prosecution of the Licensed Cell Patents and Joint Patents.

(d) **Poseida Patents**. Poseida shall have the sole right to prepare, file, prosecute and maintain Patents that claim Poseida's solely-owned Information, at Poseida's sole cost and expense.

**6.3 Enforcement.**

(a) **Notification**. If either Party becomes aware of any (i) existing or threatened infringement, anywhere in the world, of any Licensed Cell Patent or Joint Patent, which infringement involves (A) the manufacture, use, sale, import or offer for sale of any Licensed Cell

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Product or (B) the filing of a BLA by a Third Party for a product that names a Licensed Cell Product as a reference product (or similar filing in a country other than the U.S.) or (ii) declaratory judgment action by a Third Party in connection with any infringement described in the preceding clause (i) alleging the invalidity, unenforceability or non-infringement of a Licensed Cell Patent in the Field and in the Territory (collectively (i) and (ii), a "**Product Infringement**"), such Party shall promptly notify the other Party in writing to that effect.

(b) **Enforcement Rights**.

(i) Poseida shall have the first right, but not the obligation, to bring an appropriate suit or take other action against any person or entity engaged in, or to defend against, such Product Infringement, […***…]. If Poseida does not, within […***…] days after its receipt or delivery of notice under Section 6.3(a), commence a suit to enforce the applicable Patents, take other action to terminate such Product Infringement or initiate a defense against such Product Infringement, then Genus shall have the right, but not the obligation, to commence such a suit or take such an action or defend against such Product Infringement in the Territory […***…]. In such event, Poseida shall take appropriate actions in order to enable Genus to commence a suit or take the actions set forth in the preceding sentence, and Poseida shall have the right […***…], to be represented in any such suit by counsel of its own choice.

(ii) Genus may request Poseida to take steps to protect the Licensed Cell Patents from an apparent infringement. Poseida shall notify Genus, within […***…] months of receiving a written request from Genus, of action it intends to take, if any, to compel termination of the alleged infringing action or to initiate legal proceedings against the alleged infringer.

(iii) Genus and/or DFCI independently has the right to join any legal proceeding under this Section 6.3(b), and fund up to […***…] of the cost of the legal proceeding from the date of joining. If Genus and/or DFCI elects to join as a party to the action pursuant to this Section 6.3(b), Genus and/or DFCI may jointly participate in the action with Poseida, but Poseida's counsel will be lead counsel.

(iv) Regardless of whether Genus and/or DFCI are joined or join any legal proceeding initiated by Poseida, no settlement, consent judgment or other voluntary final disposition of the legal proceeding that adversely affects Genus and/or DFCI may be entered into without the consent of Genus, which consent shall not be unreasonably withheld or delayed.

(c) **Collaboration.** Each Party shall cooperate with and provide to the Party enforcing any such rights under this Section 6.3 reasonable assistance in such enforcement, […***…]. The non-enforcing Party further agrees to join, […***…], any such action brought under this Section 6.3 as a party plaintiff if required by applicable law to pursue such action. The enforcing Party under this Section 6.3 shall keep the other Party regularly informed of the status and progress of such enforcement efforts, and shall reasonably consider the other Party's comments on any such efforts. Poseida may exercise any of its rights pursuant to this Section 6.3 through an Affiliate or Sublicensee.

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(d) **Expenses and Recoveries.** The Party bringing or defending a claim, suit or action under Section 6.3(b) shall be solely responsible for any expenses incurred by such Party as a result of such claim, suit or action. If such Party recovers monetary damages in such claim, suit or action, such recovery shall be allocated first to the reimbursement of any expenses incurred by the Parties in such litigation (including, for this purpose, a reasonable allocation of expenses of internal counsel), and any remaining amounts shall be allocated as follows: […***…].

(e) **Enforcement of Poseida Patents.** As between the Parties, Poseida shall have the sole right, but not the obligation, to bring an appropriate suit or other action against any person or entity allegedly infringing any Patents owned or controlled by Poseida and to defend against any declaratory judgment action against any such Patents.

(f) **DFCI**. DFCI's rights under this Section 6.3 are limited to the DFCI Patents and not any other Licensed Patent.

**6.4 Action by Third Party.** In the event that any Third Party initiates a declaratory judgment action alleging the noninfringement, invalidity or unenforceability of the DFCI Patents, or if any Third Party brings an infringement action against Poseida or its Affiliates or Sublicensees because of the exercise of the rights granted Poseida under this Agreement with respect to the DFCI Patents, and Poseida, Genus and/or DFCI has not commenced any action to enforce DFCI Patents against such Third Party under the terms of Section 6.3 above, Poseida shall give prompt notice to Genus of any such action. Within […***…] days from the date of its notice to Genus of any action covered under this Section 6.4, Poseida shall notify Genus whether Poseida will defend against such action under its own control […***…]. Prior to its election of whether or not to defend the declaratory judgment action during this […***…]day period, Poseida may, considering in good faith the views of Genus and DFCI, take any necessary actions, including the filing of pleadings required by the Federal Rules of Civil Procedure or any local rules of court. Any such actions and filings during this […***…] day pendency prior to election shall not be deemed as an election by Poseida to defend the declaratory judgment action. If Poseida elects not to defend such action, Genus and/or DFCI shall have the right, but not the obligation to defend against such action under its own control […***…]. Any owner of the applicable DFCI Patents shall join the action as a party if required by law, […***…]. Neither Party shall enter into any settlement, consent judgment or other voluntary final disposition of any action under this Section 6.4 without the other Party's prior written consent, which consent shall not be unreasonably withheld or delayed, unless the settlement includes any express or implied admission of liability or wrongdoing on Genus' and DFCI's part, in which case the right to grant or deny consent is absolute and at its sole discretion. Notwithstanding the above, if Poseida and/or Genus has commenced any action to enforce DFCI

Patents against such Third Party under the terms of Section 6.3 above, then the terms of Section 6.3 will supersede the terms of this Section 6.4.

## ARTICLE 7

### CONFIDENTIALITY

**7.1 Confidentiality**. Each Party, in its capacity as a Receiving Party, agrees that, during the Term and for a period of […***…] years thereafter, it shall keep confidential and shall not publish or otherwise disclose and shall not use for any purpose other than as provided for in this Agreement (which includes the exercise of any rights or the performance of any obligations hereunder) any Confidential Information furnished to it by the Disclosing Party pursuant to this Agreement, except to the extent expressly authorized by this Agreement or otherwise agreed in writing by the Parties. The foregoing confidentiality and non-use obligations shall not apply to any portion of Disclosing Party's Confidential Information that the Receiving Party can demonstrate by competent written proof:

(a) was already known to the Receiving Party or its Affiliate, other than under an obligation of confidentiality, at the time of disclosure by the Disclosing Party;

(b) was generally available to the public or otherwise part of the public domain at the time of its disclosure to the Receiving Party;

(c) became generally available to the public or otherwise part of the public domain after its disclosure and other than through any act or omission of the Receiving Party in breach of this Agreement;

(d) was disclosed to the Receiving Party or its Affiliate by a Third Party who has a legal right to make such disclosure and who did not obtain such information directly or indirectly from the Disclosing Party; or

(e) was independently discovered or developed by the Receiving Party or its Affiliate without access to or aid, application or use of Disclosing Party's Confidential Information, as evidenced by a contemporaneous writing.

**7.2 Authorized Disclosure**. Notwithstanding the obligations set forth in Section 7.1, Receiving Party may disclose Disclosing Party's Confidential Information and the terms of this Agreement solely to the extent:

(a) such disclosure is reasonably necessary to (i) its Representatives on a need-to-know basis for the sole purpose of performing its obligations or exercising its rights under this Agreement; provided that in each case, the disclosees are aware of the confidential nature of such information and are bound by written obligations of confidentiality and non-use consistent with those contained in this Agreement; or (ii) actual or potential investors, acquirors, licensees and

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other financial or commercial partners solely for the purpose of evaluating or carrying out an actual or potential investment, acquisition, collaboration or license, provided that in each such case such recipients are bound by confidentiality and non-use obligations at least as stringent as those contained in the Agreement and with a term of no less than […***…] years; or

(b) such disclosure is reasonably necessary to comply with applicable Laws, including regulations promulgated by applicable security exchanges, court order, administrative subpoena or order; provided that the Party subject to such Laws or other order shall (i) promptly notify the other Party of such required disclosure, (ii) use reasonable efforts to obtain, or to assist the other Party in obtaining, a protective order preventing or limiting the required disclosure and (iii) disclose only that information that, at the advice of counsel, is required to be disclosed.

Receiving Party will be responsible for any failure of its Representatives to comply with the terms of this Section 7.2.

**7.3 Publicity; Term of Agreement**.

(a) The Parties agree that the material terms of this Agreement are the Confidential Information of both Parties, subject to the special authorized disclosure provisions set forth in this Section 7.3 or Section 7.2.

(b) If either Party desires to make any public announcement concerning the material terms of this Agreement, such Party shall give reasonable prior advance notice of the proposed text of such announcement to the other Party for its prior review and approval (except as otherwise provided herein), except that in the case of a press release or governmental filing required by Law, the disclosing Party shall provide the other Party with such advance notice as it reasonably can and shall not be required to obtain approval therefor. Each such press release shall contain appropriate references to the other Party if so requested. A Party commenting on such a proposed press release shall provide its comments, if any, within […***…] business days after receiving the press release for review. Neither Party shall be required to seek the permission of the other Party to repeat any information that has already been publicly disclosed by such Party, or by the other Party, in accordance with this Section 7.3(b), provided such information remains accurate as of such time.

(c) The Parties acknowledge that either or both Parties may be obligated to file under applicable Laws a copy of this Agreement with the U.S. Securities and Exchange Commission or other Governmental Authorities. Each Party shall be entitled to make such a required filing, provided that it requests confidential treatment of the commercial terms and sensitive technical terms hereof and thereof to the extent such confidential treatment is reasonably available to such Party. In the event of any such filing, each Party will provide the other Party with a copy of this Agreement marked to show provisions for which such Party intends to seek confidential treatment and shall reasonably consider and incorporate the other Party's reasonable comments thereon to the extent consistent with the legal requirements, with respect to the filing Party, governing disclosure of material agreements and material information that must be publicly filed.

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## ARTICLE 8

### REPRESENTATIONS AND WARRANTIES

**8.1 Mutual Representations and Warranties**. Each Party hereby represents and warrants to the other Party as follows:

(a) **Corporate Existence**. As of the Effective Date, it is a company or corporation duly organized, validly existing, and in good standing under the Laws of the jurisdiction in which it is incorporated.

(b) **Corporate Power, Authority and Binding Agreement**. As of the Effective Date, (i) it has the corporate power and authority and the legal right to enter into this Agreement and perform its obligations hereunder; (ii) it has taken all necessary corporate action on its part required to authorize the execution and delivery of this Agreement and the performance of its obligations hereunder; and (iii) this Agreement has been duly executed and delivered on behalf of such Party, and constitutes a legal, valid, and binding obligation of such Party that is enforceable against it in accordance with its terms.

**8.2 Additional Representations and Warranties of Genus**. Genus represents and warrants and, as applicable, covenants to Poseida as follows, as of the Effective Date:

(a) **Title; Encumbrances.** Genus is the sole owner or exclusive licensee of all Licensed Patents (which ownership or license is identified on Exhibit A), free and clear from any mortgages, pledges, liens, security interests, conditional and installment sale agreements, encumbrances, charges or claims of any kind that would have an adverse impact on the rights and licenses granted under this Agreement. Genus has the full and legal rights and authority to license to Poseida the Licensed Technology as provided herein;

**(b) Exhibit A.** To Genus' Knowledge, Exhibit A is an accurate listing by owner, inventor(s), serial number, country and status of all patents and patent applications owned or controlled by Genus as of the Effective Date that are necessary or useful for the development, manufacture, use, offer for sale, sale or import of CAR Cells;

**(c) Validity**. To the actual knowledge of […***…]. as of the Effective Date without any duty of due inquiry ("**Genus' Knowledge**" or "**Knowledge**"), there is no fact or circumstance existing as of the Effective Date that would cause Genus to reasonably conclude that any of the issued patents in the Licensed Patents is invalid or unenforceable, or that any patent application in the Licensed Patents will be invalid or unenforceable upon issuance;

**(e) Notice of Infringement.** Genus has not received any written notice or written threat from any Third Party asserting or alleging, nor does Genus have any Knowledge of any basis for any assertion or allegation, that any research, manufacture or development of Antibodies by Genus prior to the Effective Date infringed or would infringe the intellectual property rights of such Third Party;

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**(f) Notice of Misappropriation.** Genus has not received any written notice or written threat from any Third Party asserting or alleging, and to Genus' Knowledge there is no basis for any assertion or allegation, that any research, manufacture or development of the Licensed Technology, including Antibodies, by Genus prior to the Effective Date misappropriated the intellectual property rights of such Third Party;

**(g) No Conflicts**. Genus has not entered, and shall not enter, into any agreement with any Third Party that is in conflict with the rights granted to Poseida under this Agreement, and has not taken and shall not take any action that would in any way prevent it from granting the rights granted to Poseida under this Agreement, or that would otherwise materially conflict with or adversely affect Poseida's rights under this Agreement;

**(h) Third Party Technology**. To Genus' Knowledge, (i) the manufacture, development and commercialization of CAR Cells will not infringe or misappropriate any intellectual property rights of a Third Party, and (ii) there are no pending Third Party patent applications that, if issued with the published or currently pending claims, would be infringed by the manufacture, development or commercialization of CAR Cells;

**(i) Third Party Infringement**. To Genus' Knowledge, no Third Party is infringing or has infringed any Licensed Patents or has misappropriated any Licensed Know-How;

**(j) Disclosure**. Genus has disclosed to Poseida all information in Genus's possession or Control that to Genus' Knowledge would be material to Poseida's analysis of the rights and licenses granted under this Agreement, and all such information disclosed by Genus is true and correct to Genus' Knowledge.

**(k) DFCI Agreement**. (i) Neither Genus nor, to Genus' Knowledge, DFCI is in breach of the DFCI Agreement and, to Genus' Knowledge, the DFCI Agreement is in full force and effect, and neither Genus nor any of its Affiliates has received any written notice of breach of the DFCI Agreement; and (ii) a true, correct and complete copy of the DFCI Agreement has been provided to Poseida.

**8.3 Disclaimers.** EXCEPT AS OTHERWISE SET FORTH IN THIS AGREEMENT, NEITHER PARTY MAKES, AND EACH PARTY HEREBY DISCLAIMS, ANY AND ALL REPRESENTATIONS AND WARRANTIES OF ANY KIND, ORAL OR WRITTEN, EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, WITH RESPECT TO THE SUBJECT MATTER OF THIS AGREEMENT, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT AND ANY WARRANTY ARISING OUT OF PRIOR COURSE OF DEALING AND USAGE OF TRADE.

**8.4 Covenant Regarding Control**. Genus Controls and shall Control throughout the Term (a) all Patents owned or licensed by Genus as of the Effective Date and (b) any Patents that become owned or licensed by Genus after the Effective Date during the Term; in each case of (a) and (b), that are necessary for the development, manufacture, use, offer for sale, sale or import of

CAR Cells; provided, however, that this Section 8.4 will not affect transfer of such Patents to any Third Party to which this Agreement is assigned pursuant to Section 12.10.

## ARTICLE 9

## INDEMNIFICATION

**9.1 Indemnification by Poseida.** Poseida shall defend, indemnify, and hold Genus, its Affiliates and DFCI, and each of their respective officers, directors, employees, and agents (the "**Genus Indemnitees**") harmless from and against damages or other amounts payable to a Third Party claimant, as well as any reasonable attorneys' fees and costs of litigation incurred by such Genus Indemnitees, resulting from any claims, suits, proceedings or causes of action brought by such Third Party (collectively, "**Claims**") against such Genus Indemnitee to the extent arising from or based on (a) the research, development, design, production, manufacture, sale, commercialization, use in commerce, lease, promotion or other exploitation of any Licensed Products) by or on behalf of Poseida or its Affiliates or Sublicensees, (b) the breach of any of Poseida's obligations, representations or warranties under this Agreement, (c) the willful misconduct or negligent acts of Poseida, its Affiliates, or Sublicensees, or their respective officers, directors, employees or agents or (d) any activities carried out by Poseida, its Affiliates, or Sublicensees, or their respective officers, directors, employees or agents pursuant to this Agreement or the exercise by Poseida, its Affiliates, or Sublicensees, or their respective officers, directors, employees or agents of any rights granted under this Agreement. The foregoing indemnity obligation shall not apply to the extent that (i) the Genus Indemnitees fail to comply with the indemnification procedures set forth in Section 9.3 and Poseida's defense of the relevant Claims is prejudiced by such failure, or (ii) any Claim arises from or is based on any activity set forth in Section 9.2(b) or 9.2(c) for which Genus is obligated to indemnify the Poseida Indemnitees under Section 9.2.

**9.2 Indemnification by Genus.** Genus shall defend, indemnify, and hold Poseida and its Affiliates and their respective officers, directors, employees, and agents (the "**Poseida Indemnitees**") harmless from and against damages or other amounts payable to a Third Party claimant, as well as any reasonable attorneys' fees and costs of litigation incurred by such Poseida Indemnitees, resulting from any Claims against such Poseida Indemnitee to the extent arising from or based on (a) the research, development, design, production, manufacture, sale, commercialization, use in commerce, lease, promotion or other exploitation of any products containing Antibodies by or on behalf of Genus or its Affiliates or licensees, (b) the breach of any of Genus' obligations, representations or warranties under this Agreement, or (c) the willful misconduct or negligent acts of Genus or its Affiliates, or the officers, directors, employees or agents of Genus or its Affiliates. The foregoing indemnity obligation shall not apply to the extent that (i) the Poseida Indemnitees fail to comply with the indemnification procedures set forth in Section 9.3 and Genus' defense of the relevant Claims is prejudiced by such failure, or (ii) any Claim arises from or is based on any activity set forth in Section 9.1(b) or 9.1(c) for which Poseida is obligated to indemnify the Genus Indemnitees under Section 9.1.

**9.3 Procedure.** To be eligible to be indemnified as described in this Article 9, each person or entity seeking to be indemnified (each, an "**Indemnitee**") shall provide the indemnifying

Party with prompt notice of any claim (with a description of the claim and the nature and amount of any such loss) giving rise to the indemnification obligation pursuant to Section 9.1 or 9.2, as the case may be, and the exclusive ability to defend such claim (with the reasonable cooperation of Indemnitee(s)). Each Indemnitee shall have the right to retain its own counsel, at its own expense, if representation by the counsel of the indemnifying Party would be inappropriate due to actual or potential differing interests between such Indemnitee(s) and the Indemnifying Party. Neither the Indemnitee(s) nor the indemnifying Party shall settle or consent to the entry of any judgment with respect to any claim for losses for which indemnification is sought without the prior written consent of the other (not to be unreasonably withheld or delayed); provided however, that the indemnifying Party shall have the right to settle or compromise any claim for losses without such prior written consent if the settlement or compromise provides for a full and unconditional release of the Indemnitee(s) and is not materially prejudicial to any Indemnitee's rights.

**9.4 Insurance**. Each Party shall procure and maintain general liability insurance, including product liability insurance, in amounts not less than $[…***…] per incident and $[…***…] annual aggregate at all times during which any Licensed Product (in the case of Poseida) or Antibody (in the case of Genus) is being clinically tested in human subjects or commercially distributed or sold by such Party and for the […***…] year period thereafter. Each Party shall list DFCI as an additional insured. It is understood that such insurance shall not be construed to create a limit of either Party's liability with respect to its indemnification obligations under this Article 9. Each Party shall provide the other Party with written evidence of such insurance upon request. Each Party shall provide the other Party with written notice at least […***…] days prior to the cancellation or non-renewal of such insurance. Poseida shall require any Affiliates or Sublicensee(s) to maintain insurance in favor of DFCI and trustees, officers, medical and professional staff, employees, and agents and their respective successors, heirs and assigns under the same terms set forth in this Section 9.4.

## ARTICLE 10

## TERM; TERMINATION

**10.1 Term.** This Agreement shall become effective on the Effective Date and, unless earlier terminated pursuant to this Article 10, shall remain in effect on a Licensed Cell Product-by-Licensed Cell Product and country-by-country basis, until the expiration of the Royalty Term for such Licensed Cell Product in such country (the "**Term**"). Upon the expiration of the Royalty Term for a Licensed Cell Product in a particular country, the licenses granted by Genus to Poseida under Section 2.1 with respect to such Licensed Cell Product and any related Licensed Companion Diagnostic, shall become fully-paid, royalty free, perpetual and irrevocable for such country.

**10.2 Termination by Poseida.** Poseida may terminate this Agreement at will upon thirty (30) days prior written notice to Genus.

**10.3 Termination for Certain Reasons.**

(a) **Breach**. Subject to Section 10.3(b), each Party shall have the right to terminate this Agreement upon written notice to the other Party if such other Party materially

***Certain Confidential Information Omitted

breaches this Agreement and, after receiving written notice from the non-breaching Party identifying such material breach in reasonable detail, fails to cure such material breach within ninety (90) days from the date of such notice; provided that if such breach is not reasonably capable of cure within such ninety (90)-day period, the breaching Party may submit a reasonably acceptable cure plan prior to the end of such ninety (90)-day period, in which case the other Party shall not have the right to terminate this Agreement for so long as the breaching Party is using diligent and good faith efforts to implement such cure plan and cure such breach.

(b) **Disputed Breach**. If the alleged breaching Party disputes in good faith the existence or materiality of a breach specified in a notice provided by the other Party in accordance with Section 10.3(a), and such alleged breaching Party provides the other Party notice of such dispute within such ninety (90)-day period, then the non-breaching Party shall not have the right to terminate this Agreement under Section 10.3(a) unless and until the arbitrator, in accordance with Article 11, has determined that the alleged breaching Party has materially breached the Agreement and such Party fails to cure such breach within ninety (90) days following such arbitrator's decision. It is understood and agreed that during the pendency of such dispute, all of the terms and conditions of this Agreement shall remain in effect and the Parties shall continue to perform all of their respective obligations hereunder. This Section 10.3(b) will not apply with respect to any act or omission by Poseida that would reasonably be deemed a breach of the DFCI Agreement, and in such event the provisions of Section 9.2.8 of the DFCI Agreement shall apply, *mutatis mutandis* as if Genus is DFCI and Poseida is Company.

(c) **Insolvency**. Genus may terminate this Agreement immediately upon written notice, with no further notice obligation or opportunity to cure, if (i) Poseida makes an assignment for the benefit of creditors; (ii) Poseida admits in writing its inability to pay debts as they mature; (iii) a trustee or receiver is appointed for a substantial part of Poseida's assets; or (iv) a bankruptcy proceeding (other than a reorganization proceeding in which Poseida is and will continue to be in compliance with all the terms of this Agreement) is instituted against Poseida which is acquiesced in, is not dismissed within one hundred twenty (120) days, or results in an adjudication of bankruptcy.

(d) **Other Causes**. Genus may terminate this Agreement immediately upon written notice to Poseida if Poseida (or an Affiliate or Sublicensee) fails to initiate a Phase I clinical trial for a Licensed Product within twenty (20) months after receiving approval of an IND filed by Poseida (or such Affiliate or Sublicensee) with respect to such Licensed Product.

**10.4 Effects of Termination.**

(a) **Accrued Obligations; Survival**. Termination or expiration of this Agreement for any reason shall not release a Party from any liability or obligation that already has accrued prior to such expiration or termination, nor affect the survival of any provision hereto to the extent it is expressly stated to survive such termination. The following provisions shall survive any expiration or termination of this Agreement for a period of time specified therein, or if not specified, then they shall survive indefinitely: Articles 1, 7, 9, 11, and 12, and Sections 5.4, 5.5, 5.6, 5.7, 6.1, 8.3 and 10.4.

(b) **Sublicense Survival.** Upon termination of this Agreement by Genus pursuant to Section 10.3, any sublicense granted by Poseida under this Agreement shall survive as a direct license between Genus and such Sublicensee on the same terms and conditions as those set forth in this Agreement, to the extent applicable to the rights granted by Poseida to such Sublicensee, provided that such sublicense was granted in accordance with the terms of Section 2.2, and that such Sublicensee is in compliance with the terms of the sublicense agreement at the time of such termination and agrees to comply with all applicable terms of this Agreement. Genus is not obligated or required to accept any terms or conditions that would bind Genus beyond the scope of this Agreement.

## ARTICLE 11

## GOVERNING LAW; DISPUTE RESOLUTION

**11.1 Governing Law.** This Agreement shall be governed by the laws of the State of Delaware, without giving effect to any conflicts of laws principles that would require the application of other law.

**11.2 Dispute Resolution**. The Parties recognize that disputes as to matters arising under or relating to this Agreement or either Party's rights or obligations hereunder may arise from time to time. It is the objective of the Parties to establish procedures to facilitate the resolution of such disputes in an expedient manner by mutual cooperation and without resort to litigation. To accomplish this objective, the Parties agree to follow the procedures set forth in this Article 11 to resolve any such dispute if and when it arises.

**11.3 Resolution by Executives**. If an unresolved dispute as to matters arising under or relating to this Agreement or either Party's rights or obligations hereunder arises, either Party may refer such dispute to the Chief Executive Officer of Genus and the Chief Executive Officer of Poseida, who shall meet in person or by telephone within […***…] days after such referral to attempt in good faith to resolve such dispute. If such matter cannot be resolved by discussion of such officers within such […***…]-day period (as may be extended by mutual written agreement), such dispute shall be resolved in accordance with Section 11.4. The Parties acknowledge that discussions between the Parties to resolve disputes are settlement discussions under applicable rules of evidence and without prejudice to either Party's legal position.

**11.4 Arbitration**.

(a) **JAMS**. Any dispute that is not resolved through negotiations under Section 11.3 shall be finally settled by binding arbitration before one arbitrator. The arbitration shall be administered by JAMS pursuant its Comprehensive Arbitration Rules and Procedures then in effect (the "**JAMS Rules**"), except as otherwise provided herein. The seat, or legal place, of arbitration shall be Chicago, Illinois, and the Parties consent to the personal jurisdiction of the U.S. federal courts for any case arising out of or otherwise related to this arbitration, its conduct and its enforcement. The language of the arbitration shall be English. The Parties acknowledge that this Agreement evidences a transaction involving interstate commerce. Notwithstanding Section 11.1 with respect to the applicable substantive Law, any arbitration conducted pursuant to the terms of

this Agreement shall be governed by the U.S. Federal Arbitration Act, 9 U.S.C. §§ 1-16 (the "**Federal Arbitration Act**"), to the exclusion of any inconsistent state laws.

(b) **Award**. Any award shall be promptly paid in Dollars free of any tax, deduction or offset; and any costs, fees or taxes incident to enforcing the award shall, to the maximum extent permitted by Law, be charged against the Party resisting enforcement. Each Party agrees to abide by the award rendered in any arbitration conducted pursuant to this Section 11.4, and agrees that, subject to the Federal Arbitration Act, judgment may be entered upon the final award in any court of competent jurisdiction, and the Parties intend all such courts to give full faith and credit to such judgment in order to enforce such award. Judgment on the award may also be entered in any other court of competent jurisdiction. The award shall include interest from the date of any damages incurred for breach of this Agreement, and from the date of the award until paid in full, at a rate fixed by the arbitrator.

(c) **Costs**. Each Party shall bear its own legal fees. The arbitrator shall assess his or her costs, fees and expenses against the Party losing the arbitration unless he or she believes that neither Party is the clear winner, in which case the arbitrator shall divide his or her fees, costs and expenses according to his or her sole discretion. The arbitrator, in the arbitrator's discretion, may award reimbursement of attorney's fees to the prevailing party.

(d) **Injunctive Relief**. Provided a Party has made a sufficient showing under the rules and standards set forth in the U.S. Federal Rules of Civil Procedure and applicable case law, the arbitrator shall have the freedom to invoke, and the Parties agree to abide by, injunctive measures after either Party submits in writing for arbitration claims requiring immediate relief. Additionally, nothing in this Section 11.4 will preclude either Party from seeking interim or provisional relief from a court of competent jurisdiction, including a temporary restraining order, preliminary injunction or other interim equitable relief, concerning a dispute either prior to or during any arbitration if necessary to protect the interests of such Party or to preserve the status quo pending the arbitration proceeding.

(e) **Confidentiality**. The existence and content of the arbitral proceeding, including any rulings or award, shall be kept confidential by the Parties and the arbitrator except to the extent (i) required by applicable Law; (ii) required to protect or pursue a legal right; (iii) required to enforce or challenge an award; or (iv) approved by written consent of the Parties. Notwithstanding anything to the contrary herein, either Party may disclose matters relating to the arbitration or the arbitral proceedings where necessary for the preparation or presentation of a claim or defense in such arbitration. The arbitrator shall issue appropriate protective orders to safeguard each Party's Confidential Information.

(f) **Survivability**. Any duty to arbitrate under this Agreement shall remain in effect and be enforceable after termination of this Agreement for any reason.

(g) **Patent and Trademark Disputes**. Any dispute, controversy or claim relating to the scope, validity, enforceability or infringement of any patents or trademarks shall be submitted to a court of competent jurisdiction in the country in which such patent or trademark rights were granted or arose.

## ARTICLE 12

## GENERAL PROVISIONS

**12.1 Rights in Bankruptcy**. All licenses and other rights granted under or pursuant to this Agreement by Genus are, and shall otherwise be deemed to be, for purposes of Section 365(n) of the U.S. Bankruptcy Code, licenses of right to "intellectual property" as defined under Section 101 of the U.S. Bankruptcy Code. The Parties agree that Poseida, as licensee of certain rights under this Agreement, shall retain and may fully exercise all of its rights and elections under the U.S. Bankruptcy Code.

**12.2 Notices.** Any notice required or permitted to be given under this Agreement shall be in writing, shall specifically refer to this Agreement, and shall be addressed to the appropriate Party at the address specified below or such other address as may be specified by such Party in writing in accordance with this Section 12.2, and shall be deemed to have been given for all purposes when received, if hand-delivered or sent by reputable courier service.

All notices to Poseida shall be addressed as follows:

Poseida Therapeutics, Inc.
4242 Campus Point Court, Suite 700
San Diego, CA 92121
Attn: Mark Gergen, CBO and CFO

with a copy to (which copy shall not constitute notice):

Cooley LLP
One Freedom Square
Reston Town Center
11951 Freedom Drive
Reston, VA 20190-5656
Attention: Ken Krisko

All notices to Genus shall be addressed as follows:

Genus Oncology, LLC
650 Albany Street
Boston, MA 02118
Attn: Nick Pontikes, CEO

with a copy to (which copy shall not constitute notice):

McDermott Will & Emery LLP
28 State Street
Boston, MA 02109-1775
Attn: Sarah Hogan

Any Party may, by written notice to the other, designate a new address to which notices to the Party giving the notice shall thereafter be delivered.

**12.3 Force Majeure.** No Party shall be liable for any delay or failure of performance to the extent such delay or failure is caused by circumstances beyond its reasonable control and that by the exercise of due diligence it is unable to prevent, provided that the Party claiming excuse uses its commercially reasonable efforts to overcome the same.

**12.4 Performance by Affiliates**. Each Party may discharge any obligations and exercise any right hereunder through any of its Affiliates. Each Party hereby guarantees the performance by its Affiliates of such Party's obligations under this Agreement, and shall cause its Affiliates to comply with the provisions of this Agreement in connection with such performance.

**12.5 Further Actions**. Each Party agrees to execute, acknowledge and deliver such further instruments, and to do all such other acts, as may be necessary or appropriate in order to carry out the purposes and intent of this Agreement.

**12.6 Entirety of Agreement.** This Agreement, including its Exhibits, sets forth the entire agreement and understanding of the Parties relating to the subject matter contained herein and merges all prior discussions and agreements between them (including the Confidentiality Agreement) related to such subject matter. The Agreement may be amended only by a written instrument signed by authorized representatives of each of the Parties.

**12.7 Non-Waiver.** The failure of a Party in any one or more instances to insist upon strict performance of any of the terms and conditions of this Agreement shall not be construed as a waiver or relinquishment, to any extent, of the right to assert or rely upon any such terms or conditions on any future occasion.

**12.8 Independent Contractors**. Each Party shall act solely as an independent contractor, and nothing in this Agreement shall be construed to give either Party the power or authority to act for, bind or commit the other Party in any way. Nothing herein shall be construed to create the relationship of partners, principal and agent, or joint-venture partners between the Parties.

**12.9 Severability**. If any one or more of the provisions of this Agreement is held to be invalid or unenforceable by any court of competent jurisdiction from which no appeal can be or is taken, the provision shall be considered severed from this Agreement and shall not serve to invalidate any remaining provisions hereof. The Parties shall make a good faith effort to replace

any invalid or unenforceable provision with a valid and enforceable one such that the objectives contemplated by the Parties when entering this Agreement may be realized.

**12.10 Assignment.** Neither Party may assign or transfer this Agreement or any rights or obligations hereunder without the prior written consent of the other, except that a Party may make such an assignment or transfer without the other Party's consent to its Affiliates or to a Third Party successor to substantially all of the business of such Party to which this Agreement relates, whether in a merger, sale of stock, sale of assets or other transaction. Any permitted assignment shall be binding on the successors of the assigning Party. Any assignment or attempted assignment by either Party in violation of the terms of this Section 12.10 shall be null, void and of no legal effect.

**12.11 Limitation of Liability.** EXCEPT FOR INDEMNITY OBLIGATIONS IN ARTICLE 9 AND DAMAGES AVAILABLE FOR BREACH OF ARTICLE 7, IN NO EVENT SHALL EITHER PARTY BE LIABLE TO THE OTHER PARTY FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, PUNITIVE OR SPECIAL DAMAGES ARISING OUT OF OR RELATED TO THIS AGREEMENT, HOWEVER CAUSED, UNDER ANY THEORY OF LIABILITY, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

**12.12 No Strict Construction; Headings**. This Agreement has been prepared jointly by the Parties and shall not be strictly construed against either Party. Ambiguities, if any, in this Agreement shall not be construed against any Party, irrespective of which Party may be deemed to have authored the ambiguous provision. The headings of each Article and Section in this Agreement have been inserted for convenience of reference only and are not intended to limit or expand on the meaning of the language contained in the particular Article or Section. Except where the context otherwise requires, the use of any gender shall be applicable to all genders, and the word "or" is used in the inclusive sense (and/or). The term "including" as used herein means including, without limiting the generality of any description preceding such term.

**12.13 Counterparts.** This Agreement may be executed in one or more counterparts, each of which shall be an original and all of which shall constitute together the same document.

*Signature Page to Follow*

**IN WITNESS WHEREOF,** the Parties hereto have duly executed this License Agreement on the Effective Date.

| **POSEIDA THERAPEUTICS, INC.** | **GENUS ONCOLOGY, LLC** |
|---|---|
| */s/ Mark Gergen* | */s/ Nick Pontikes* |
| Name: Mark Gergen<br>Title: CBO and CFO | Name: Nick Pontikes<br>Title: CEO |

Exhibits

Exhibit A Licensed Patents
Exhibit B DFCI Agreement

Exhibit A
Licensed Patents

[…***…]

***Certain Confidential Information Omitted

[…***…]

***Certain Confidential Information Omitted

**Exhibit 10.17**

LEASE

by and between

BMR-9360-9390 TOWNE CENTRE LP,
a Delaware limited partnership

and

POSEIDA THERAPEUTICS, INC.,
a Delaware corporation

BioMed Realty form dated 11/10/17

**Table of Contents**

# LEASE

THIS LEASE (this "Lease") is entered into as of this 1 day of October, 2018 (the "Execution Date"), by and between BMR-9360-9390 TOWNE CENTRE LP, a Delaware limited partnership ("Landlord"), and POSEIDA THERAPEUTICS, INC., a Delaware corporation ("Tenant").

## RECITALS

A. WHEREAS, Landlord owns certain real property (the "Property") and the improvements on the Property located at 9360 and 9390 Towne Centre Drive, San Diego, California, including the buildings located thereon; and

B. WHEREAS, Landlord wishes to lease to Tenant, and Tenant desires to lease from Landlord, certain premises (the "Premises") located on the second (2nd) and third (3rd) floors of the building located at 9390 Towne Centre Drive, San Diego, California (the ("Building"), pursuant to the terms and conditions of this Lease, as detailed below.

C. WHEREAS, an affiliate of Landlord, BMR-Eastgate Mall LP, a Delaware limited partnership (the "4575 Owner"), owns certain real property located adjacent to the Property at 4575 Eastgate Mall, San Diego, California (the "4575 Property"), including the building located thereon (the "4575 Building").

## AGREEMENT

NOW, THEREFORE, Landlord and Tenant, in consideration of the mutual promises contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and intending to be legally bound, agree as follows:

1. Lease of Premises.

1.1. Effective on the Term Commencement Date (as defined below), Landlord hereby leases to Tenant, and Tenant hereby leases from Landlord, the Premises, as shown on Exhibit A attached hereto, for use by Tenant in accordance with the Permitted Use (as defined below) and no other uses. The Property, the 4575 Property and all landscaping, parking facilities, private drives and other improvements and appurtenances related thereto, including the Building, the 4575 Building and other buildings located on the Property and the 4575 Property are hereinafter collectively referred to as the "Project." All portions of the Building that are for the non-exclusive use of the tenants of the Building only, and not the tenants of the Project generally, such as service corridors, stairways, elevators, public restrooms and public lobbies (all to the extent located in the Building), are hereinafter referred to as "Building Common Area." All portions of the Project that are from time to time designated by Landlord (with respect to the Property) and the 4575 Owner (with respect to the 4575 Property) as being for the non-exclusive use of tenants of the Project generally, including driveways, sidewalks, parking areas, landscaped areas, and (to the extent not located in a building, except as otherwise provided in

Section 46) service corridors, stairways, elevators, public restrooms, public lobbies and upon the Amenities Facilities Opening Date (as defined below), the Amenities Facilities (as defined in Exhibit J attached hereto) are hereinafter referred to as "Project Common Area." The Building Common Area and Project Common Area are collectively referred to herein as "Common Area."

2. Basic Lease Provisions. For convenience of the parties, certain basic provisions of this Lease are set forth herein. The provisions set forth herein are subject to the remaining terms and conditions of this Lease and are to be interpreted in light of such remaining terms and conditions.

2.1. This Lease shall take effect upon the Execution Date and, except as specifically otherwise provided within this Lease, each of the provisions hereof shall be binding upon and inure to the benefit of Landlord and Tenant from the date of execution and delivery hereof by all parties hereto.

2.2. In the definitions below, each current Rentable Area (as defined below) is expressed in square feet. Rentable Area and "Tenant's Pro Rata Shares" are all subject to adjustment as provided in this Lease.

| Definition or Provision | Means the Following (As of the Execution Date) |
|---|---|
| Approximate Rentable Area of Premises* | 53,110 square feet |
| Approximate Rentable Area of Building | 74,360 square feet |
| Approximate Rentable Area of Project | 163,070 square feet |
| Tenant's Pro Rata Share of Building* | 71.42% |
| Tenant's Pro Rata Share of Project* | 32.57% |

* *Note: Subject to adjustment as provided in this Lease.*

2.3. Initial monthly and annual installments of Base Rent for the Premises ("Base Rent") as of the Term Commencement Date, subject to adjustment under this Lease (including the Base Rent Abatement as provided in Section 7.1, the annual Base Rent adjustments provided in Article 8 and adjustments to Base Rent pursuant to Sections 44 and 45):

| Dates | Square Feet of Rentable Area* | Base Rent per Square Foot of Rentable Area | Monthly Base Rent* | Annual Base Rent* |
|---|---|---|---|---|
| Term Commencement Date – Month 12 | 53,110 | $ 3.90 monthly | $207,129.00 | $2,485,548.00 |

* *Note: Subject to adjustment as provided in this Lease.*

2.4. Estimated Term Commencement Date: March 15, 2019

2.5. Estimated Term Expiration Date: December 14, 2029

2.6. Security Deposit: $207,129.00, subject to increase in accordance with the terms hereof

2.7. Permitted Use: Office and laboratory use in conformity with all federal, state, municipal and local laws, codes, ordinances, rules and regulations of Governmental Authorities (as defined below) having jurisdiction over the Premises, the Building, the Property, the Project, Landlord or Tenant, including both statutory and common law and hazardous waste rules and regulations ("Applicable Laws")

2.8. Address for Rent Payment:

BMR-9360-9390 Towne Center LP
Attention Entity 697
P.O. Box 511387
Los Angeles, California 90051-7942

2.9. Address for Notices to Landlord:

BMR-9360-9390 Towne Center LP
17190 Bernardo Center Drive
San Diego, California 92128
Attn: Legal Department

2.10. Address for Notices to Tenant:

Prior to the Term Commencement Date:

Poseida Therapeutics, Inc.

4242 Campus Point Court, Suite 700
San Diego, California 92121
Attention: Chief Executive Officer

From and after the Term Commencement Date:

Poseida Therapeutics, Inc.
9390 Towne Centre Drive
San Diego, California 92121
Attention: Chief Executive Officer

in either case with a copy to:

Cooley LLP
4401 Eastgate Mall
San Diego, CA 92121
Attention: Michael Levinson, Esq.

2.11. Address for Invoices to Tenant:

Prior to the Term Commencement Date:

Poseida Therapeutics, Inc.
4242 Campus Point Court, Suite 700
San Diego, California 92121
Attention: Vice President Finance

From and after the Term Commencement Date:

Poseida Therapeutics, Inc.
9390 Towne Centre Drive
San Diego, California 92121
Attention: Vice President Finance

2.12. The following Exhibits are attached hereto and incorporated herein by reference:

| | |
|---|---|
| Exhibit A | Premises |
| Exhibit B | Work Letter |
| Exhibit B-1 | Tenant Work Insurance Schedule |
| Exhibit B-2 | Approved Schematic Plans |
| Exhibit C | Acknowledgement of Term Commencement Date and Term Expiration Date |
| Exhibit D | Form of Additional TI Allowance Acceptance Letter |

| | |
|---|---|
| Exhibit E | Form of Letter of Credit |
| Exhibit F | Rules and Regulations |
| Exhibit G | Location of Visitor Parking Spaces |
| Exhibit H | Tenant's Personal Property |
| Exhibit I | Form of Estoppel Certificate |
| Exhibit J | Landlord Improvements |
| Exhibit K | Landlord Improvements Site Plan |
| Exhibit L | Hazardous Materials Shed |

3. Term. The actual term of this Lease (as the same may be extended pursuant to Article 42 hereof, and as the same may be earlier terminated in accordance with this Lease, the "Term") shall commence on the actual Term Commencement Date (as defined in Article 4) and end on the date (the "Term Expiration Date") that is one hundred twenty-nine (129) months after the actual Term Commencement Date, subject to extension or earlier termination of this Lease as provided herein. TENANT HEREBY WAIVES THE REQUIREMENTS OF SECTION 1933 OF THE CALIFORNIA CIVIL CODE, AS THE SAME MAY BE AMENDED FROM TIME TO TIME.

4. Possession and Commencement Date.

4.1. Tenant acknowledges that Amylin Pharmaceuticals, Inc. (the "Current Occupant") and Landlord are parties to that certain Lease Agreement dated as of June 27, 2006 (as the same may have been amended, assigned, amended and restated, supplemented or otherwise modified from time to time, the "Prior Lease"), whereby Current Occupant leases the Premises from Landlord pursuant to the terms and conditions set forth therein. The Prior Lease is currently scheduled to terminate on October 1, 2018 (the "Prior Lease Termination Date"), pursuant to a Lease Termination Agreement dated as of October 1, 2018 by and between the Current Occupant and Landlord (the "Prior Lease Termination Agreement"). Subject to any holdover by the Current Occupant beyond the Prior Lease Termination Date and the surrender of the Premises by the Current Occupant in accordance with the terms and conditions set forth in the Prior Lease Termination Agreement, Landlord shall use commercially reasonable efforts to tender possession of the Premises to Tenant on the Estimated Term Commencement Date, broom clean, with the work (the "Tenant Improvements") required of Landlord described in the Work Letter attached hereto as Exhibit B (the "Work Letter") Substantially Complete (as defined below). Tenant agrees that in the event such work is not Substantially Complete on or before the Estimated Term Commencement Date for any reason (including as a result of any holdover by the Current Occupant or failure by the Current Occupant to surrender the Premises to Landlord in accordance with all of the terms and conditions of the Prior Lease Termination Agreement), then (a) this Lease shall not be void or voidable, (b) Landlord shall not be liable to Tenant for any loss or damage resulting therefrom, (c) the Term Expiration Date shall be extended accordingly and (d) Tenant shall not be responsible for the payment of any Base Rent or Tenant's Adjusted Share of Operating Expenses (as defined below) until the actual Term Commencement Date as described in Section 4.2 occurs. The term "Substantially Complete" or "Substantial Completion" means that (i) the Tenant Improvements are substantially complete in

accordance with the Approved Plans (as defined in the Work Letter), except for minor punch list items, and (ii) a temporary or permanent certificate of occupancy (or either's substantial equivalent) has been issued. Notwithstanding anything in this Lease (including the Work Letter) to the contrary, Landlord's obligation to timely achieve Substantial Completion shall be subject to extension on a day-for-day basis as a result of Force Majeure (as defined below) and/or any delay caused by or arising from Tenant or the Current Occupant. Landlord will use commercially reasonable efforts to correct the aforementioned minor punch list items within sixty (60) days following the Term Commencement Date; provided, however, Tenant agrees that in the event such punch list items are not completed within such sixty (60) day time period, (y) this Lease shall not be void or voidable and (z) Landlord shall not be liable to Tenant for any loss or damage resulting therefrom.

4.2. The "Term Commencement Date" shall be the day Landlord tenders possession of the Premises to Tenant, broom clean, with the Tenant Improvements Substantially Complete. If possession is delayed by act or omission of Tenant, then the Term Commencement Date shall be the date that the Term Commencement Date would have occurred but for such delay. Tenant shall execute and deliver to Landlord written acknowledgment of the actual Term Commencement Date and the Term Expiration Date within ten (10) days after Tenant takes occupancy of the Premises, in the form attached as Exhibit C hereto. Failure to execute and deliver such acknowledgment, however, shall not affect the Term Commencement Date or Landlord's or Tenant's liability hereunder. Failure by Tenant to obtain validation by any medical review board or other similar governmental licensing of the Premises required for the Permitted Use by Tenant shall not serve to extend the Term Commencement Date.

4.3. Landlord shall use reasonable efforts to grant access to Tenant, at Tenant's risk, to the Premises thirty (30) days prior to the Term Commencement Date for the purpose of installing equipment and trade fixtures, but not for the conduct of Tenant's business; provided, however, that prior to such entry, Tenant shall furnish to Landlord evidence satisfactory to Landlord in advance that insurance coverages required of Tenant under the provisions of Article 23 are in effect, and such entry shall be subject to all the terms and conditions of this Lease other than the payment of Base Rent and Tenant's Adjusted Share of Operating Expenses (as defined below); and provided, further, that if the Term Commencement Date is delayed due to such early access, then the Term Commencement Date shall be the date that the Term Commencement Date would have occurred but for such delay. Tenant agrees that in the event Landlord is unable to provide access to the Premises before the Term Commencement Date for any reason (including as a result of any holdover by the Current Occupant beyond the Prior Lease Termination Date or failure by the Current Occupant to surrender the Premises to Landlord in accordance with all of the terms and conditions of the Prior Lease Termination Agreement), then (a) this Lease shall not be void or voidable and (b) Landlord shall not be liable to Tenant for any loss or damage resulting therefrom.

4.4. Landlord shall cause the Tenant Improvements to be constructed in the Premises pursuant to the Work Letter at a cost to Landlord not to exceed (a) Three Million Seven Hundred Seventeen Thousand Seven Hundred Dollars ($3,717,700) (based upon Seventy Dollars ($70.00)

per square foot of Rentable Area (as defined below) of the Premises) (the "Base TI Allowance") plus (b) if properly requested by Tenant pursuant to this Section, Two Million Six Hundred Fifty-Five Thousand Five Hundred Dollars ($2,655,500) (based upon Fifty Dollars ($50.00) per square foot of Rentable Area of the Premises) (the "Additional TI Allowance"), for a total of up to Six Million Three Hundred Seventy Three Thousand Two Hundred Dollars ($6,373,200) (based upon One Hundred Twenty Dollars ($120.00) per square foot of Rentable Area of the Premises); provided, however, that Landlord shall only make the Additional TI Allowance available to Tenant in installments equal to Five Hundred Thirty-One Thousand One Hundred Dollars ($531,100) (based upon Ten Dollars ($10.00) per square foot of Rentable Area of the Premises) (each, an "Additional TI Allowance Installment"). The Base TI Allowance, together with the Additional TI Allowance (if properly requested by Tenant pursuant to this Article), shall be referred to herein as the "TI Allowance." The TI Allowance may be applied to the costs of (m) construction, (n) project management by Landlord (which fee shall equal three percent (3%) of all of the hard and soft costs actually incurred by Landlord in connection with construction of the Tenant Improvements, including any such hard and soft costs for which the TI Allowance is used), (o) commissioning of mechanical, electrical and plumbing systems by a licensed, qualified commissioning agent hired by Landlord, and review of such party's commissioning report by a licensed, qualified commissioning agent hired by Tenant, (p) space planning, architect, engineering and other related services performed by third parties unaffiliated with Tenant, (q) building permits and other taxes, fees, charges and levies by Governmental Authorities (as defined below) for permits or for inspections of the Tenant Improvements, (r) costs and expenses for labor, material, equipment, fixtures, furniture, signage and cabling, provided that, no more than Two Hundred Sixty-Five Thousand Five Hundred Fifty Dollars ($265,550) (based upon Five Dollars ($5.00) per square foot of Rentable Area of the Premises) of the Base TI Allowance may be used towards the cost of furniture, signage, equipment, data or cabling; and (s) a project management fee for Tenant's construction manager, Project Management Advisors, Inc.; provided that, no more than one percent (1%) of the TI Allowance shall be applied to such project management fee. In no event shall the TI Allowance be used for (w) payments to Tenant or any affiliates of Tenant, (x) except as otherwise provided in this Section with respect to the Base TI Allowance, (i) the purchase of any furniture, personal property or other equipment or (ii) the payment of any project management fee for Tenant's construction manager, (y) costs arising from any default by Tenant of its obligations under this Lease or (z) costs that are recoverable by Tenant from a third party (e.g., insurers, warrantors, or tortfeasors).

4.5. Tenant shall have until the date that is six (6) months following the Term Commencement Date (the "TI Deadline"), to submit Fund Requests (as defined in the Work Letter) to Landlord for disbursement of the unused portion of the TI Allowance, after which date Landlord's obligation to fund any such costs for which Tenant has not submitted a Fund Request to Landlord shall expire. Base Rent shall be increased by Seven Cents ($0.07) per square foot of Rentable Area of the Premises per month for each Additional TI Allowance Installment of the Additional TI Allowance disbursed by Landlord in accordance with this Lease. The amount by which Base Rent shall be increased shall be determined (and Base Rent shall be increased accordingly) as of the Term Commencement Date and, if such determination does not reflect use by Tenant of all of the Additional TI Allowance, shall be determined again as of the TI Deadline,

with Tenant paying (on the next succeeding day that Base Rent is due under this Lease (the "True-Up Date")) any underpayment of the further adjusted Base Rent for the period beginning on the Term Commencement Date and ending on the True-Up Date.

4.6. Landlord shall not be obligated to expend any portion of the Additional TI Allowance until Landlord shall have received from Tenant a letter in the form attached as Exhibit D hereto executed by an authorized officer of Tenant with respect to each Additional TI Allowance Installment of the Additional TI Allowance. In no event shall any unused TI Allowance entitle Tenant to a credit against Rent payable under this Lease.

4.7. Notwithstanding any provision in this Article to the contrary, in the event that Substantial Completion of the Tenant Improvements does not occur by the Outside Date (as defined below), then, as Tenant's sole remedy, Tenant's obligation to pay Base Rent shall abate, following the application of any Base Rent Abatement pursuant to Section 7.1, on a day-for-day basis for each one (1) full day in the period from the Outside Date until the date upon which the Tenant Improvements are Substantially Complete. The term "Outside Date" means the date that is ninety (90) days after the Estimated Term Commencement Date, as such date shall be extended on a day-for-day basis as a result of Force Majeure and/or any delay caused by or arising from Tenant or the Current Occupant.

5. Condition of Premises. Tenant acknowledges that neither Landlord nor any agent of Landlord has made any representation or warranty with respect to the condition of the Premises, the Building or the Project, or with respect to the suitability of the Premises, the Building or the Project for the conduct of Tenant's business. Tenant acknowledges that (a) it is fully familiar with the condition of the Premises and agrees to take the same in its condition "as is" as of the Term Commencement Date, subject to Landlord's obligations under this Section 5, and (b) Landlord shall have no obligation to alter, repair or otherwise prepare the Premises for Tenant's occupancy or to pay for or construct any improvements to the Premises, except for performance of the Tenant Improvements and the Landlord Improvements (as defined below), in each case to be constructed in the Premises, and payment of the Base TI Allowance and, if properly requested by Tenant pursuant to the terms of the Lease, the Additional TI Allowance, and as otherwise expressly provided in this Section 5. Notwithstanding anything to the contrary in this Lease, Landlord shall deliver the Premises to Tenant in broom clean condition with the existing base building mechanical, elevator, fire, safety, heating, ventilating and air conditioning system ("HVAC") and the existing base building electrical, lighting and plumbing systems, in each case serving the Premises (the "Existing Building Systems") in good working condition; provided that, Landlord shall not be responsible for any repairs or replacements to any Building Systems that are otherwise needed as a result of any act or omission of Tenant's agents, employees or contractors (such obligation, "Landlord's Delivery Obligation"). Tenant's taking of possession of the Premises shall, except as otherwise agreed to in writing by Landlord and Tenant, conclusively establish that the Premises, the Building and the Project were at such time in good, sanitary and satisfactory condition and repair and that Landlord's Delivery Obligation was satisfied; provided that, if Landlord fails to satisfy Landlord's Delivery Obligation (a "Delivery Shortfall"), then Tenant may, as its sole and exclusive remedy, deliver notice of such failure to

Landlord detailing the nature of such failure (a "Shortfall Notice"); provided, further, that any Shortfall Notice must be received by Landlord no later than the date (the "Shortfall Notice Deadline") that is one hundred twenty (120) days after the Term Commencement Date. In the event that Landlord receives a Shortfall Notice regarding a valid Delivery Shortfall on or before the Shortfall Notice Deadline, Landlord shall, at Landlord's expense (and not as part of any Operating Expenses that may be charged to Tenant under this Lease), promptly remedy the Delivery Shortfall. Notwithstanding anything to the contrary in this Lease, Landlord shall not have any obligations or liabilities in connection with (y) a failure to satisfy Landlord's Delivery Obligation except to the extent such failure is identified by Tenant in a Shortfall Notice delivered to Landlord on or before the Shortfall Notice Deadline and/or (z) any failure of the Existing Building Systems to be in good working condition arising from or in connection with (i) the misuse, misconduct, damage, destruction, negligence and/or any other action or omission of Tenant, Tenant's contractors or subcontractors, or any of their respective employees, agents or invitees, (ii) Tenant's failure to properly repair or maintain the Premises as required by this Lease, (iii) any modifications, Alterations or improvements constructed by or on behalf of Tenant (excluding the initial Tenant Improvements) or (iv) without limiting Landlord's obligations under this Lease, any other event, circumstance or other factor arising or occurring after the Term Commencement Date and, in any such case, no Delivery Shortfall shall be deemed to have occurred as a result thereof.

6. Rentable Area.

6.1. The term "Rentable Area" shall reflect such areas as reasonably calculated by Landlord's architect, as the same may be reasonably adjusted from time to time by Landlord in consultation with Landlord's architect, to reflect changes to the Premises, the Building or the Project, as applicable. Notwithstanding the foregoing to the contrary and except as contemplated in Section 2.3 and Section 45, in no event shall the Rentable Area of the Premises or the Building be deemed to have increased unless due to a change in the outer dimensions of the exterior walls of the same.

6.2. The Rentable Area of the Building is generally determined by making separate calculations of Rentable Area applicable to each floor within the Building and totaling the Rentable Area of all floors within the Building. The Rentable Area of a floor is computed by measuring to the outside finished surface of the permanent outer Building walls. The full area calculated as previously set forth is included as Rentable Area, without deduction for columns and projections or vertical penetrations, including stairs, elevator shafts, flues, pipe shafts, vertical ducts and the like, as well as such items' enclosing walls.

6.3. The term "Rentable Area," when applied to the Premises, is that area equal to the usable area of the Premises, plus an equitable allocation of Rentable Area within the Building that is not then utilized or expected to be utilized as usable area, including that portion of the Building devoted to corridors, equipment rooms, restrooms, elevator lobby, atrium and mailroom.

6.4. The Rentable Area of the Project is the total Rentable Area of all buildings within the Project.

7. Rent.

7.1. Tenant shall pay to Landlord as Base Rent for the Premises, commencing on the Term Commencement Date, the sums set forth in Section 2.3, subject to the rental adjustments provided in Article 8 hereof. Base Rent shall be paid in equal monthly installments as set forth in Section 2.3, subject to the rental adjustments provided in Article 8 hereof, each in advance on the first day of each and every calendar month during the Term. Notwithstanding the foregoing, provided that Tenant is not in Default under this Lease, Tenant shall be entitled to receive an abatement of Base Rent for the first nine (9) complete calendar months of the initial Term (the "Base Rent Abatement Period") in an amount not to exceed Two Hundred Seven Thousand One Hundred Twenty-Nine and 00/100 Dollars ($207,129.00) per month and One Million Eight Hundred Sixty-Four Thousand One Hundred Sixty-One and 00/100 Dollars ($1,864,161.00) in the aggregate (the "Base Rent Abatement"), provided that the amount of the Base Rent Abatement shall be subject to adjustment based upon adjustments to Base Rent due to any Additional TI Allowance Installments disbursed by Landlord in accordance with Section 4.5 (for purposes of clarity and by way of example only, if the Term commenced on March 15, 2019, then the Base Rent Abatement Period would commence on March 15, 2019 and end on December 14, 2019). For purposes of clarity, Tenant shall be responsible for all other Rent (including, without limitation, Operating Expenses and the Property Management Fee) due pursuant to the terms of this Lease during the Base Rent Abatement Period. Tenant acknowledges and agrees that the foregoing Base Rent Abatement has been granted to Tenant as additional consideration for entering into this Lease, and for agreeing to pay the Base Rent and perform the terms and conditions otherwise required under this Lease. If Tenant shall be in Default, then Tenant's right to receive the Base Rent Abatement for the Base Rent Abatement Period shall automatically terminate as of the date of such default and Tenant shall immediately be obligated to begin paying Base Rent for the Premises in full. The Base Rent Abatement shall be personal to the original Tenant and shall only apply to the extent that the original Tenant (and not any assignee, or any sublessee or other transferee of the original Tenant's interest in this Lease) is the Tenant under this Lease during the Base Rent Abatement Period. For the avoidance of doubt, during the Base Rent Abatement Period, the Property Management Fee shall be calculated as if Tenant were paying full unabated Base Rent.

7.2. In addition to Base Rent, Tenant shall pay to Landlord as additional rent ("Additional Rent") at times hereinafter specified in this Lease (a) Tenant's Adjusted Share (as defined below) of Operating Expenses (as defined below), (b) the Property Management Fee (as defined below), and (c) any other amounts that Tenant assumes or agrees to pay under the provisions of this Lease that are owed to Landlord, including any and all other sums that may become due by reason of any default of Tenant or failure on Tenant's part to comply with the agreements, terms, covenants and conditions of this Lease to be performed by Tenant, after notice and the lapse of any applicable cure periods.

7.3. Base Rent and Additional Rent shall together be denominated "Rent." Rent shall be paid to Landlord, without abatement, deduction or offset, in lawful money of the United States of America to the address set forth in Section 2.8 or to such other person or at such other place as Landlord may from time designate in writing (which may, at Tenant's election, include payment of Rent by ACH, subject to an ACH authorization form acceptable to Landlord (which form shall stipulate that such authorization is for credit entries only to Landlord's bank account)). In the event the Term commences or ends on a day other than the first day of a calendar month, then the Rent for such fraction of a month shall be prorated for such period on the basis of the number of days in the month and shall be paid at the then-current rate for such fractional month.

7.4. Tenant's obligation to pay Rent shall not be discharged or otherwise affected by (a) any Applicable Laws now or hereafter applicable to the Premises, (b) any other restriction on Tenant's use, (c) except as expressly provided herein, any casualty or taking or (d) any other occurrence; and Tenant waives all rights now or hereafter existing to terminate or cancel this Lease or quit or surrender the Premises or any part thereof, or to assert any defense in the nature of constructive eviction to any action seeking to recover rent. Tenant's obligation to pay Rent with respect to any period or obligations arising, existing or pertaining to the period prior to the date of the expiration or earlier termination of the Term or this Lease shall survive any such expiration or earlier termination; provided, however, that nothing in this sentence shall in any way affect Tenant's obligations with respect to any other period.

8. Rent Adjustments. Base Rent shall be subject to an annual upward adjustment of three percent (3%) of the then-current Base Rent. The first such adjustment shall become effective commencing on the first (1st) annual anniversary of the Term Commencement Date, and subsequent adjustments shall become effective on every successive annual anniversary for so long as this Lease continues in effect.

9. Operating Expenses.

9.1. As used herein, the term "Operating Expenses" shall include:

(a) Government impositions, including property tax costs consisting of real and personal property taxes (including amounts due under any improvement bond upon the Building or the Project (including the parcel or parcels of real property upon which the Building, the other buildings in the Project and areas serving the Building and the Project are located)) or assessments in lieu thereof imposed by any federal, state, regional, local or municipal governmental authority, agency or subdivision (each, a "Governmental Authority"); taxes on or measured by gross rentals received from the rental of space in the Project; taxes based on the square footage of the Premises, the Building or the Project, as well as any parking charges, utilities surcharges or any other costs levied, assessed or imposed by, or at the direction of, or arising from Applicable Laws or interpretations thereof, promulgated by any Governmental Authority in connection with the use or occupancy of the Project or the parking facilities serving the Project; taxes on this transaction or any document to which Tenant is a party creating or transferring an interest in the Premises; any fee for a business license to operate an office

building; and any expenses, including the reasonable cost of attorneys or experts, reasonably incurred by Landlord and/or the 4575 Owner in seeking reduction by the taxing authority of the applicable taxes, less tax refunds obtained as a result of an application for review thereof; and

(b) All other costs of any kind paid or incurred by Landlord and/or the 4575 Owner in connection with the operation or maintenance of the Building and the Project (including the Amenities Facilities (from and after the Amenities Facilities Opening Date) and any building in which the Amenities Facilities is or will be located), which shall include costs of repairs and replacements to improvements within the Project as appropriate to maintain the Project as required hereunder; costs of utilities furnished to the Common Area; sewer fees; cable television; trash collection; cleaning, including windows (including the Amenities Facilities (from and after the Amenities Facilities Opening Date) and any building in which the Amenities Facilities is or will be located); HVAC; maintenance of landscaping and grounds; snow removal; maintenance of drives and parking areas; maintenance of the roof (including the roof of the building in which the Amenities Facilities are or will be located); security services and devices; building supplies; maintenance or replacement of equipment utilized for operation and maintenance of the Project; license, permit and inspection fees; sales, use and excise taxes on goods and services purchased by Landlord and/or the 4575 Owner in connection with the operation, maintenance or repair of the Building or Project systems and equipment; telephone, postage, stationery and customary office supplies and other expenses incurred in connection with the operation, maintenance or repair of the Project; third party accounting, legal and other professional fees and expenses incurred in connection with the Project; costs of furniture, draperies, carpeting, landscaping supplies and other customary and ordinary items of personal property provided by Landlord and/or the 4575 Owner for use in Common Area; capital expenditures incurred (i) in replacing obsolete equipment, (ii) for the primary purpose of reducing Operating Expenses or (iii) required by any Governmental Authority to comply with changes in Applicable Laws that take effect after the Execution Date or to ensure continued compliance with Applicable Laws in effect as of the Execution Date, in each case amortized over the useful life thereof, as reasonably determined by Landlord, in accordance with generally accepted accounting principles (collectively, "Permitted Capital Expenditures"); costs of complying with Applicable Laws (except to the extent such costs are incurred to remedy non-compliance as of the Execution Date with Applicable Laws); costs to keep the Project in compliance with, or costs or fees otherwise required under or incurred pursuant to any CC&Rs (as defined below), including condominium fees; insurance premiums, including premiums for commercial general liability, property casualty, earthquake, terrorism and environmental coverages; portions of insured losses paid by Landlord and/or the 4575 Owner as part of the deductible portion of a loss pursuant to the terms of insurance policies; service contracts; costs of services of independent contractors retained to do work of a nature referenced above; and costs of compensation (including employment taxes and fringe benefits) of all persons who perform regular and recurring duties connected with the day-to-day operation and maintenance of the Project, its equipment, the adjacent walks, landscaped areas, drives and parking areas, including janitors, floor waxers, window washers, watchmen, gardeners, sweepers, plow truck drivers, handymen, and engineering/maintenance/facilities personnel (provided that such costs shall be

prorated, as reasonably determined by Landlord, for persons that perform work at other properties owned by Landlord or any affiliate of Landlord).

(c) Notwithstanding the foregoing, Operating Expenses shall not include any net income, franchise, capital stock, estate or inheritance taxes, or taxes that are the personal obligation of Tenant or of another tenant of the Project; leasing commissions; advertising and marketing expenses; expenses that relate to preparation of rental space for a tenant at the Project, including costs incurred to improve, renovate, redecorate or otherwise prepare any rental space for a tenant; legal expenses incurred by Landlord in connection with the negotiation of leases with prospective tenants and occupants of the Project (other than Tenant) and legal expenses (including attorneys' fees) incurred in connection with disputes and enforcement of any leases with tenants of the Project (other than Tenant); costs of repairs to the extent reimbursed by payment received from other tenants of the Project or a third party not affiliated with Landlord; legal expenses (including attorneys' fees) incurred in connection with negotiations or disputes between Landlord and employees, management agents, leasing agents, purchasers or mortgagees of the Building; expenses of initial development and construction, including grading, paving, landscaping and decorating (as distinguished from maintenance, repair and replacement of the foregoing); costs or expenses to the extent reimbursed by payment of insurance proceeds received by Landlord; interest, principal or any other payments under any loans to Landlord or loans secured by a loan agreement, mortgage, deed of trust, security instrument or other loan document covering the Project or a portion thereof (collectively, "Loan Documents") (provided that interest upon a government assessment or improvement bond payable in installments shall constitute an Operating Expense under Subsection 9.1(a)); all payments of rent (but not taxes or operating expenses) under any ground lease or other underlying lease of all or any portion of the Project; salaries of executive officers of Landlord; depreciation claimed by Landlord for tax purposes (provided that this exclusion of depreciation is not intended to delete from Operating Expenses actual costs of repairs and replacements that are provided for in Subsection 9.1(b)); taxes that are excluded from Operating Expenses by the last sentence of Subsection 9.1(a); costs or expenses incurred in connection with the financing or sale of the Project or any portion thereof; costs to maintain reserves of any kind; costs incurred to remedy any non-compliance as of the Execution Date with Applicable Laws that was not caused by Tenant or any Tenant Party; costs incurred to remove, study, test or remediate Hazardous Materials (as defined below) to the extent such Hazardous Materials existed on or about the Project as of the Execution Date and did not arise from and were not caused or exacerbated by Tenant or any Tenant Party (except with respect to those costs for which Tenant is otherwise responsible pursuant to the express terms of this Lease, which costs shall remain Tenant's direct obligation); costs arising from a breach of this Lease by Landlord or the gross negligence or willful misconduct of Landlord or its employees; costs expressly excluded from Operating Expenses elsewhere in this Lease or that are charged to or paid by Tenant under other provisions of this Lease; professional fees and disbursements and other costs and expenses related to the ownership (as opposed to the use, occupancy, operation, maintenance or repair) of the Project; capital expenditures, except Permitted Capital Expenditures; costs to subsidiaries or affiliates of Landlord for goods and/or services in or to the Project to the extent the same materially exceeds arm's-length competitive costs charged by firms that are not related to Landlord for the same goods and/or services; costs

of Landlord's charitable or political contributions; costs for the initial purchase of any fine art maintained at the Project; a property management fee other than the Property Management Fee (as defined below); penalties, fines, interest or other similar charges incurred by Landlord due to Landlord's inability or unwillingness to make payment of taxes and/or to file any tax or informational returns when due (unless due to a default by Tenant); and any item that, if included in Operating Expenses, would involve a double collection for such item by Landlord. To the extent that Tenant uses more than Tenant's Pro Rata Share of any item of Operating Expenses, Tenant shall pay Landlord for such excess in addition to Tenant's obligation to pay Tenant's Pro Rata Share of Operating Expenses (such excess, together with Tenant's Pro Rata Share, "Tenant's Adjusted Share").

(d) Beginning with the 2021 calendar year, there shall be a cap (as further described in this Section, the "Cap") on Controllable Operating Expenses (as defined below) permitted to be charged to Tenant. For purposes of calculating Tenant's share of Controllable Operating Expenses, the aggregate amount of Controllable Operating Expenses that Landlord uses to determine Tenant's share of Controllable Operating Expenses shall not increase more than five percent (5%) annually on a cumulative and compounding basis over the Controllable Operating Expenses Baseline (as defined below). The "Controllable Operating Expenses Baseline" shall mean the aggregate amount of Controllable Operating Expenses incurred by Landlord and/or the 4575 Owner for the 2020 calendar year. "Controllable Operating Expenses" means all Operating Expenses except for property taxes, assessments or impositions, capital expenditures, costs for repairs and maintenance (excluding preventative maintenance), utility charges, sewer fees, license, permit or inspection fees imposed by a Governmental Authority, insurance charges, costs of services provided under a union contract, payments under CC&Rs (as defined below) or to an owners' association, and costs associated with repairs due to casualty, vandalism or other cause outside of Landlord's or the 4575 Owner's reasonable control or costs that Landlord or the 4575 Owner reasonably determines are necessary to prevent an adverse effect on the Project. For the avoidance of doubt, Controllable Operating Expenses for the 2019 and 2020 calendar years shall not be subject to the Cap.

9.2. Tenant shall pay to Landlord on the first day of each calendar month of the Term, as Additional Rent, (a) the Property Management Fee (as defined below), and (b) Landlord's estimate of Tenant's Adjusted Share of Operating Expenses with respect to the Building and the Project, as applicable, for such month.

(w) The "Property Management Fee" shall equal three percent (3%) of Base Rent due from Tenant. Tenant shall pay the Property Management Fee in accordance with Section 9.2 with respect to the entire Term, including any extensions thereof or any holdover periods, regardless of whether Tenant is obligated to pay Base Rent, Operating Expenses or any other Rent with respect to any such period or portion thereof. For the first nine (9) months of the Term (and any period of occupancy prior to the Term as further described in Section 9.5), the Property Management Fee shall be calculated as if Tenant were paying full unabated Base Rent under this Lease (i.e., Two Hundred Seven Thousand One Hundred Twenty-Nine and 00/100

Dollars ($207,129.00) per month (or any such adjusted Base Rent as a result of Base Rent adjustments made pursuant to this Lease)).

(x) Within ninety (90) days after the conclusion of each calendar year (or such longer period as may be reasonably required by Landlord), Landlord shall furnish to Tenant a statement showing in reasonable detail the actual Operating Expenses, Tenant's Adjusted Share of Operating Expenses, and the cost of providing utilities to the Premises for the previous calendar year ("Landlord's Statement"). Any additional sum due from Tenant to Landlord shall be due and payable within thirty (30) days after receipt of an invoice therefor. If the amounts paid by Tenant pursuant to this Section exceed Tenant's Adjusted Share of Operating Expenses for the previous calendar year, then Landlord shall credit the difference against the Rent next due and owing from Tenant; provided that, if the Lease term has expired, Landlord shall accompany Landlord's Statement with payment for the amount of such difference.

(y) Any amount due under this Section for any period that is less than a full month shall be prorated for such fractional month on the basis of the number of days in the month.

9.3. Landlord may, from time to time, modify Landlord's calculation and allocation procedures for Operating Expenses, so long as such modifications produce Dollar results substantially consistent with Landlord's then-current practice at the Project. Landlord or an affiliate(s) of Landlord currently own other property(ies) adjacent to the Project or its neighboring properties (collectively, "Neighboring Properties"). In connection with Landlord performing services for the Project pursuant to this Lease, similar services may be performed by the same vendor(s) for Neighboring Properties. In such a case, Landlord shall reasonably allocate to each Building and the Project the costs for such services based upon the ratio that the square footage of the Building or the Project (as applicable) bears to the total square footage of all of the Neighboring Properties or buildings within the Neighboring Properties for which the services are performed, unless the scope of the services performed for any building or property (including the Building and the Project) is disproportionately more or less than for others, in which case Landlord shall equitably allocate the costs based on the scope of the services being performed for each building or property (including the Building and the Project). Since the Project consists of multiple buildings, certain Operating Expenses may pertain to a particular building(s) and other Operating Expenses to the Project as a whole. Landlord reserves the right to reasonably allocate any such costs applicable to any particular building within the Project to such building, and other such costs applicable to the Project to each building in the Project (including the Building), with the tenants in each building being responsible for paying their respective proportionate shares of their buildings to the extent required under their leases. Landlord shall allocate such costs to the buildings (including the Building) in a reasonable, non-discriminatory manner.

9.4. Landlord's Statement shall be final and binding upon Tenant unless Tenant, within forty-five (45) days after Tenant's receipt thereof, shall contest any item therein by giving written notice to Landlord, specifying each item contested and the reasons therefor; provided that

Tenant shall in all events pay the amount specified in Landlord's Statement, pending the results of the Independent Review and determination of the Accountant(s), as applicable and as each such term is defined below. If, during such forty-five (45)-day period, Tenant reasonably and in good faith questions or contests the correctness of Landlord's statement of Tenant's Adjusted Share of Operating Expenses, Landlord shall provide Tenant with reasonable access to Landlord's books and records to the extent relevant to determination of Operating Expenses, and such information as Landlord reasonably determines to be responsive to Tenant's written inquiries. Upon Tenant's request, Landlord agrees to provide such books and records and such other information required to be provided by Landlord electronically following Tenant's written request. In the event that, after Tenant's review of such information, Landlord and Tenant cannot agree upon the amount of Tenant's Adjusted Share of Operating Expenses, then Tenant shall have the right to have an independent public accounting firm hired by Tenant on an hourly basis and not on a contingent-fee basis (at Tenant's sole cost and expense) and approved by Landlord (which approval Landlord shall not unreasonably withhold or delay) audit and review such of Landlord's books and records for the year in question as directly relate to the determination of Operating Expenses for such year (the "Independent Review"), but not books and records of entities other than Landlord. Landlord shall make such books and records available at the location where Landlord maintains them in the ordinary course of its business. Landlord need not provide copies of any books or records; provided that, in connection with an Independent Review, Landlord agrees to provide the applicable books and records required by this Lease electronically following Tenant's written request. Tenant shall commence the Independent Review within fifteen (15) days after the date Landlord has given Tenant access to Landlord's books and records for the Independent Review. Tenant shall complete the Independent Review and notify Landlord in writing of Tenant's specific objections to Landlord's calculation of Operating Expenses (including Tenant's accounting firm's written statement of the basis, nature and amount of each proposed adjustment) no later than sixty (60) days after Landlord has first given Tenant access to Landlord's books and records for the Independent Review. Landlord shall review the results of any such Independent Review. The parties shall endeavor to agree promptly and reasonably upon Operating Expenses taking into account the results of such Independent Review. If, as of the date that is sixty (60) days after Tenant has submitted the Independent Review to Landlord, the parties have not agreed on the appropriate adjustments to Operating Expenses, then the parties shall engage a mutually agreeable independent third party accountant with at least ten (10) years' experience in commercial real estate accounting in the San Diego area (the "Accountant"). If the parties cannot agree on the Accountant, each shall within ten (10) days after such impasse appoint an Accountant (different from the accountant and accounting firm that conducted the Independent Review) and, within ten (10) days after the appointment of both such Accountants, those two Accountants shall select a third (which cannot be the accountant and accounting firm that conducted the Independent Review). If either party fails to timely appoint an Accountant, then the Accountant the other party appoints shall be the sole Accountant. Within ten (10) days after appointment of the Accountant(s), Landlord and Tenant shall each simultaneously give the Accountants (with a copy to the other party) its determination of Operating Expenses, with such supporting data or information as each submitting party determines appropriate. Within ten (10) days after such submissions, the Accountants shall by majority vote select either Landlord's or Tenant's

determination of Operating Expenses. The Accountants may not select or designate any other determination of Operating Expenses. The determination of the Accountant(s) shall bind the parties. If the parties agree or the Accountant(s) determine that the Operating Expenses actually paid by Tenant for the calendar year in question exceeded Tenant's obligations for such calendar year, then Landlord shall, at Tenant's option, either (a) credit the excess to the next succeeding installments of estimated Additional Rent or (b) pay the excess to Tenant within thirty (30) days after delivery of such results. If the parties agree or the Accountant(s) determine that Tenant's payments of Operating Expenses for such calendar year were less than Tenant's obligation for the calendar year, then Tenant shall pay the deficiency to Landlord within thirty (30) days after delivery of such results. If the Independent Review reveals or the Accountant(s) determine that the Operating Expenses billed to Tenant by Landlord and paid by Tenant to Landlord for the applicable calendar year in question exceeded by more than five percent (5%) what Tenant should have been billed during such calendar year, then Landlord shall pay the reasonable cost of the Independent Review and the reasonable cost of the Accountant(s). In all other cases Tenant shall pay the cost of the Independent Review and the Accountant(s).

9.5. Tenant shall not be responsible for Operating Expenses with respect to any time period prior to the Term Commencement Date; provided, however, that if Tenant occupies the Premises for the conduct of its business prior to the Term Commencement Date, Tenant shall be responsible for Operating Expenses from such earlier date of possession (the Term Commencement Date or such earlier date, as applicable, the "Expense Trigger Date"); and provided, further, that Landlord may annualize certain Operating Expenses incurred prior to the Expense Trigger Date over the course of the budgeted year during which the Expense Trigger Date occurs, and Tenant shall be responsible for the annualized portion of such Operating Expenses corresponding to the number of days during such year, commencing with the Expense Trigger Date, for which Tenant is otherwise liable for Operating Expenses pursuant to this Lease. Tenant's responsibility for Tenant's Adjusted Share of Operating Expenses shall continue to the latest of (a) the date of termination of the Lease, and (b) the date Tenant has fully vacated the Premises, provided that the foregoing shall in no event limit Landlord's right to recover unpaid Rent for the balance of the Term in accordance with Section 31.5 if this Lease is terminated due to a default by Tenant.

9.6. Operating Expenses for the calendar year in which Tenant's obligation to share therein commences and for the calendar year in which such obligation ceases shall be prorated on a basis reasonably determined by Landlord. Expenses such as taxes, assessments and insurance premiums that are incurred for an extended time period shall be prorated based upon the time periods to which they apply so that the amounts attributed to the Premises relate in a reasonable manner to the time period wherein Tenant has an obligation to share in Operating Expenses.

9.7. Within thirty (30) days after the end of each calendar month, Tenant shall submit to Landlord an invoice, or, in the event an invoice is not available, an itemized list, of all costs and expenses that (a) Tenant has incurred (either internally or by employing third parties) during the prior month and (b) for which Tenant reasonably believes it is entitled to reimbursements

from Landlord pursuant to the terms of this Lease or that Tenant reasonably believes is the responsibility of Landlord pursuant to this Lease or the Work Letter.

9.8. In the event that the Building or Project is less than fully occupied during a calendar year, Tenant acknowledges that Landlord and/or the 4575 Owner may extrapolate Operating Expenses that vary depending on the occupancy of the Building or Project, as applicable, to equal Landlord's or the 4575 Owner's (as applicable) reasonable estimate of what such Operating Expenses would have been had the Building or Project, as applicable, been ninety-five percent (95%) occupied during such calendar year; provided, however, that Landlord shall not recover more than one hundred percent (100%) of Operating Expenses.

10. Taxes on Tenant's Property.

10.1. Tenant shall be solely responsible for the payment of any and all taxes levied upon (a) personal property and trade fixtures located at the Premises and (b) any gross or net receipts of or sales by Tenant, and shall pay the same at least twenty (20) days prior to delinquency.

10.2. If any such taxes on Tenant's personal property or trade fixtures are levied against Landlord and/or the 4575 Owner or Landlord's and/or the 4575 Owner's property or, if the assessed valuation of the Building, the Property or the Project is increased by inclusion therein of a value attributable to Tenant's personal property or trade fixtures, and if Landlord and/or the 4575 Owner, after written notice from Landlord to Tenant, pays the taxes based upon any such increase in the assessed value of the Building, the Property or the Project, then Tenant shall, upon demand, repay to Landlord and/or the 4575 Owner the taxes so paid by Landlord and/or the 4575 Owner, as applicable.

10.3. If any improvements in or alterations to the Premises, whether owned by Landlord or Tenant and whether or not affixed to the real property so as to become a part thereof, are assessed for real property tax purposes at a valuation higher than the valuation at which improvements conforming to Landlord's building standards (the "Building Standard") in other spaces in the Building are assessed, then the real property taxes and assessments levied against Landlord and/or the 4575 Owner or the Building, the Property or the Project by reason of such

excess assessed valuation shall be deemed to be taxes levied against personal property of Tenant and shall be governed by the provisions of Section 10.2. Any such excess assessed valuation due to improvements in or alterations to space in the Project leased by other tenants at the Project shall not be included in Operating Expenses. If the records of the applicable governmental assessor's office are available and sufficiently detailed to serve as a basis for determining whether such Tenant improvements or alterations are assessed at a higher valuation than the Building Standard, then such records shall be binding on both Landlord and Tenant.

11. Security Deposit.

11.1. Tenant shall deposit with Landlord on or before the Execution Date the sum set forth in Section 2.6 (the "Security Deposit"), which sum shall be held by Landlord as security for the faithful performance by Tenant of all of the terms, covenants and conditions of this Lease to be kept and performed by Tenant during the period commencing on the Execution Date and ending upon the expiration or termination of Tenant's obligations under this Lease. If Tenant Defaults (as defined below) with respect to any provision of this Lease, including any provision relating to the payment of Rent, then Landlord may (but shall not be required to) use, apply or retain all or any part of the Security Deposit for the payment of any Rent or any other sum in default, or to compensate Landlord for any other loss or damage that Landlord may suffer by reason of Tenant's default. If any portion of the Security Deposit is so used or applied, then Tenant shall, within ten (10) days following demand therefor, deposit cash with Landlord in an amount sufficient to restore the Security Deposit to its original amount, and Tenant's failure to do so shall be a material breach of this Lease. The provisions of this Article shall survive the expiration or earlier termination of this Lease. TENANT HEREBY WAIVES THE REQUIREMENTS OF SECTION 1950.7 OF THE CALIFORNIA CIVIL CODE, AS THE SAME MAY BE AMENDED FROM TIME TO TIME.

11.2. In the event of bankruptcy or other debtor-creditor proceedings against Tenant, the Security Deposit shall be deemed to be applied first to the payment of Rent and other charges due Landlord for all periods prior to the filing of such proceedings.

11.3. Landlord may deliver to any purchaser of Landlord's interest in the Premises the funds deposited hereunder by Tenant, and thereupon Landlord shall be discharged from any further liability with respect to such deposit. This provision shall also apply to any subsequent transfers.

11.4. If Tenant shall fully and faithfully perform every provision of this Lease to be performed by it, then the Security Deposit, or any balance thereof, shall be returned to Tenant (or, at Landlord's option, to the last assignee of Tenant's interest hereunder) within thirty (30) days after the expiration or earlier termination of this Lease.

11.5. If the Security Deposit shall be in cash, Landlord shall hold the Security Deposit in an account at a banking organization selected by Landlord; provided, however, that Landlord shall not be required to maintain a separate account for the Security Deposit, but may intermingle it with other funds of Landlord. Landlord shall be entitled to all interest and/or

dividends, if any, accruing on the Security Deposit. Landlord shall not be required to credit Tenant with any interest for any period during which Landlord does not receive interest on the Security Deposit.

11.6. The Security Deposit may be in the form of cash, a letter of credit or any other security instrument proposed by Tenant that is acceptable to Landlord in its sole discretion. Tenant may at any time, except when Tenant is in Default (as defined below), deliver a letter of credit (the "L/C Security") as the entire Security Deposit, as follows:

(a) If Tenant elects to deliver L/C Security, then Tenant shall provide Landlord, and maintain in full force and effect throughout the Term and until the date that is four (4) months after the then-current Term Expiration Date, a letter of credit in the form of Exhibit E issued by an issuer reasonably satisfactory to Landlord, in the amount of the Security Deposit, with an initial term of at least one year. Landlord may require the L/C Security to be re-issued by a different issuer at any time during the Term if Landlord reasonably believes that the issuing bank of the L/C Security is or may soon become insolvent; provided, however, Landlord shall return the existing L/C Security to the existing issuer immediately upon receipt of the substitute L/C Security. If any issuer of the L/C Security shall become insolvent or placed into FDIC receivership, then Tenant shall immediately deliver to Landlord (without the requirement of notice from Landlord) substitute L/C Security issued by an issuer reasonably satisfactory to Landlord, and otherwise conforming to the requirements set forth in this Article. As used herein with respect to the issuer of the L/C Security, "insolvent" shall mean the determination of insolvency as made by such issuer's primary bank regulator (*i.e.*, the state bank supervisor for state chartered banks; the OCC or OTS, respectively, for federally chartered banks or thrifts; or the Federal Reserve for its member banks). If, at the Term Expiration Date, any Rent remains uncalculated or unpaid, then (i) Landlord shall with reasonable diligence complete any necessary calculations, (ii) Tenant shall extend the expiry date of such L/C Security from time to time as Landlord reasonably requires and (iii) in such extended period, Landlord shall not unreasonably refuse to consent to an appropriate reduction of the L/C Security. Tenant shall reimburse Landlord's legal costs (as estimated by Landlord's counsel) in handling Landlord's acceptance of L/C Security or its replacement or extension, not to exceed Five Thousand Dollars ($5,000) in any one instance.

(b) If Tenant delivers to Landlord satisfactory L/C Security in place of the entire Security Deposit, Landlord shall remit to Tenant any cash Security Deposit Landlord previously held.

(c) Landlord may draw upon the L/C Security, and hold and apply the proceeds in the same manner and for the same purposes as the Security Deposit, if (i) an uncured Default (as defined below) exists, (ii) as of the date that is forty-five (45) days before any L/C Security expires (even if such scheduled expiry date is after the Term Expiration Date) Tenant has not delivered to Landlord an amendment or replacement for such L/C Security, reasonably satisfactory to Landlord, extending the expiry date to the earlier of (1) four (4) months after the

then-current Term Expiration Date or (2) the date that is one year after the then-current expiry date of the L/C Security, (iii) the L/C Security provides for automatic renewals, Landlord asks the issuer to confirm the current L/C Security expiry date, and the issuer fails to do so within ten (10) business days, (iv) Tenant fails to pay (when and as Landlord reasonably requires) any bank charges for Landlord's transfer of the L/C Security or (v) the issuer of the L/C Security ceases, or announces that it will cease, to maintain an office in the city where Landlord may present drafts under the L/C Security (and fails to permit drawing upon the L/C Security by overnight courier or facsimile). This Section does not limit any other provisions of this Lease allowing Landlord to draw the L/C Security under specified circumstances.

(d) Tenant shall not seek to enjoin, prevent, or otherwise interfere with Landlord's draw under L/C Security, even if it violates this Lease. Tenant acknowledges that the only effect of a wrongful draw would be to substitute a cash Security Deposit for L/C Security, causing Tenant no legally recognizable damage. Landlord shall hold the proceeds of any draw in the same manner and for the same purposes as a cash Security Deposit. In the event of a wrongful draw, the parties shall cooperate to allow Tenant to post replacement L/C Security simultaneously with the return to Tenant of the wrongfully drawn sums, and Landlord shall upon request confirm in writing to the issuer of the L/C Security that Landlord's draw was erroneous.

(e) If Landlord transfers its interest in the Premises, then Tenant shall at Tenant's expense, within five (5) business days after receiving a request from Landlord, deliver (and, if the issuer requires, Landlord shall consent to) an amendment to the L/C Security naming Landlord's grantee as substitute beneficiary. If the required Security Deposit changes while L/C Security is in force, then Tenant shall deliver (and, if the issuer requires, Landlord shall consent to) a corresponding amendment to the L/C Security.

11.7. In the event Tenant uses any the Additional TI Allowance, Tenant shall, within five (5) days of any increase in Base Rent as a result thereof, pay to Landlord the amount of such increase as an additional Security Deposit, as a component of its obligations under this Article.

12. Use.

12.1. Tenant shall use the Premises for the Permitted Use, and shall not use the Premises, or permit or suffer the Premises to be used, for any other purpose without Landlord's prior written consent, which consent Landlord may withhold in its sole and absolute discretion. During the Term, Tenant shall, subject to Force Majeure, casualty, condemnation, closures in connection with Landlord's repair and maintenance obligations under this Lease, and all of the other terms, conditions and provisions of this Lease, have access to the Premises twenty-four (24) hours per day, seven (7) days per week.

12.2. Without limiting Landlord's obligations under Section 5 of this Lease or the Work Letter, Tenant shall not use or occupy the Premises in violation of Applicable Laws, zoning ordinances, or the certificate of occupancy (or its substantial equivalent) issued for the Building or the Project, and shall, upon five (5) days' written notice from Landlord, discontinue any use of the Premises that is declared or claimed by any Governmental Authority having

jurisdiction to be a violation of any of the above, or that in Landlord's reasonable opinion violates any of the above; provided that, Tenant shall not be obligated to make or be liable for any alterations required to be made outside of the Premises to comply with Applicable Laws except (a) to the extent triggered or required as a result of any Alterations performed by or on behalf of Tenant (but excluding the initial Tenant Improvements); (b) to the extent triggered or required as a result of Tenant's particular use of the Premises; (c) as part of Tenant's Adjusted Share of Operating Expenses; and/or (d) to the extent caused by any default by Tenant or as otherwise included as part of Tenant's indemnification obligations under this Lease. Tenant shall comply with any direction of any Governmental Authority having jurisdiction that shall, by reason of the nature of Tenant's use or occupancy of the Premises, impose any duty upon Tenant or Landlord with respect to the Premises or with respect to the use or occupation thereof, and shall indemnify, defend (at the option of and with counsel reasonably acceptable to the indemnified party(ies)), save, reimburse and hold harmless (collectively, "Indemnify," "Indemnity" or "Indemnification," as the case may require) Landlord and its affiliates, employees, agents and contractors; and any lender, mortgagee, ground lessor or beneficiary (each, a "Lender" and, collectively with Landlord and its affiliates, employees, agents and contractors, the "Landlord Indemnitees") harmless from and against any and all demands, claims, liabilities, losses, costs, expenses, actions, causes of action, damages, suits or judgments, and all reasonable expenses (including reasonable attorneys' fees, charges and disbursements, regardless of whether the applicable demand, claim, action, cause of action or suit is voluntarily withdrawn or dismissed) incurred in investigating or resisting the same (collectively, "Claims") of any kind or nature that arise before, during or after the Term as a result of Tenant's breach of this Section.

12.3. Tenant shall not do or permit to be done anything that will invalidate or increase the cost of any fire, environmental, extended coverage or any other insurance policy covering the Building or the Project, and shall comply with all rules, orders, regulations and requirements of the insurers of the Building and the Project, and Tenant shall promptly, upon demand, reimburse Landlord for any additional premium charged for such policy by reason of Tenant's failure to comply with the provisions of this Article.

12.4. Tenant shall keep all doors opening onto public corridors closed, except when in use for ingress and egress.

12.5. No additional locks or bolts of any kind shall be placed upon any of the doors or windows by Tenant, nor shall any changes be made to existing locks or the mechanisms thereof without Landlord's prior written consent. Tenant shall, upon termination of this Lease, return to Landlord all keys to offices and restrooms either furnished to or otherwise procured by Tenant. In the event any key so furnished to Tenant is lost, Tenant shall pay to Landlord the cost of replacing the same or of changing the lock or locks opened by such lost key if Landlord shall deem it necessary to make such change. Notwithstanding the foregoing, but subject to Landlord's approval (in accordance with Section 17.1), Tenant may, at Tenant's sole cost and expense as an Alteration (as defined below), install its own integrated security system in the Premises (the "Tenant Security System"); provided, however, that (a) Tenant's installation of the

Tenant Security System shall be subject to all of the terms, conditions and provisions of this Lease governing Alterations (including, without limitation, Article 17), (b) Tenant shall use reasonable efforts to select a Tenant Security System that is reasonably compatible with any Landlord security system in place at the Building or Project as of the Term Commencement Date and (c) Tenant shall coordinate the installation and operation of the Tenant Security System with Landlord to assure that the Tenant Security System does not interfere with (y) any such Landlord security system in place as of the Term Commencement Date (for which security system Landlord makes no representations or warranties of any kind whatsoever, including the functionality or integration of any such Landlord security system), and (z) the Building's systems and equipment. Tenant shall be solely responsible, at Tenant's sole cost and expense, for monitoring and operating the Tenant Security System. Landlord may require Tenant, at Tenant's sole cost, to remove the Tenant Security System and restore the Building to its condition prior to the installation of the Tenant Security System upon the expiration or earlier termination of this Lease.

12.6. No awnings or other projections shall be attached to any outside wall of the Building. No curtains, blinds, shades or screens shall be attached to or hung in, or used in connection with, any window or door of the Premises other than Landlord's standard window coverings. Neither the interior nor exterior of any windows shall be coated or otherwise sunscreened without Landlord's prior written consent, nor shall any bottles, parcels or other articles be placed on the windowsills or items attached to windows that are visible from outside the Premises. No equipment, furniture or other items of personal property shall be placed on any exterior balcony without Landlord's prior written consent, which consent shall not be unreasonably withheld, conditioned or delayed.

12.7. No sign, advertisement or notice ("Signage") shall be exhibited, painted or affixed by Tenant on any part of the Premises (that is visible outside of the Premises) or the Building without Landlord's prior written consent, which consent shall not be unreasonably withheld, conditioned or delayed. Signage shall conform to Landlord's commercially reasonable, non-discriminatory design criteria; provided that, subject to Landlord's approval, not to be unreasonably withheld, conditioned or delayed, Tenant may use Tenant's then-current logo and typeface for any building-top Signage and Signage on the interior of the Premises. For any Signage, Tenant shall, at Tenant's own cost and expense, (a) acquire all permits for such Signage in compliance with Applicable Laws and (b) design, fabricate, install and maintain such Signage in a first-class condition. Tenant shall be responsible for reimbursing Landlord for costs incurred by Landlord in removing any of Tenant's Signage upon the expiration or earlier termination of the Lease. Interior signs on entry doors to the Premises and the directory tablet shall be inscribed, painted or affixed for Tenant by Landlord at Tenant's sole cost and expense, and shall be of a size, color and type and be located in a place reasonably acceptable to Landlord. The directory tablet shall be provided exclusively for the display of the name and location of tenants only. Tenant shall not place anything on the exterior of the corridor walls or corridor doors other than Landlord's standard lettering. For so long as a monument sign exists for tenants of the Building, Tenant shall be entitled to a space on such monument sign. With respect to any Tenant Signage requested by Tenant, at Landlord's option, Landlord may install any such Tenant

Signage, and Tenant shall pay all costs associated with such installation within thirty (30) days after demand therefor. Subject to Landlord's prior written consent (which shall not be unreasonably withheld, conditioned or delayed) and compliance with Applicable Laws, any CC&Rs (as defined below) applicable to the Project and the Rules and Regulations (as defined below), and, provided that Tenant (or Tenant's Affiliate pursuant to an Exempt Transfer) (g) continues to lease and personally occupy at least fifty percent (50%) of the Premises, and (h) leases more of the Building than any other tenant of the Building, Tenant shall be entitled to exclusive Building-top Signage on the northern or southern façade of the Building. If any such Building-top Signage is installed and then Tenant (and/or Tenant's Affiliate pursuant to an Exempt Transfer) subsequently ceases to lease and personally occupy fifty percent (50%) of the Premises or is no longer leasing more space in the Building than any other tenant in the Building, Landlord (at Landlord's option in Landlord's sole and absolute discretion) may (y) require Tenant (at Tenant's sole cost and expense) to remove any such Building-top Signage and repair any damage caused thereby or (z) remove any such Building-top Signage and repair any damage caused thereby and charge Tenant for the costs thereof, which Tenant shall pay to Landlord within ten (10) days after receiving an invoice therefor. The Building-top Signage rights set forth in this Section shall be personal to the original Tenant (and/or Tenant's Affiliate pursuant to an Exempt Transfer) and Tenant shall not Transfer (as defined below) such Building-top Signage rights without Landlord's prior written consent in Landlord's sole and absolute discretion.

12.8. Tenant may only place equipment within the Premises with floor loading consistent with the Building's structural design unless Tenant obtains Landlord's prior written approval. Tenant may place such equipment only in a location designed to carry the weight of such equipment.

12.9. Tenant shall cause any equipment or machinery to be installed in the Premises so as to reasonably prevent sounds or vibrations therefrom from extending into the Common Area or other offices in the Project.

12.10. Tenant shall not (a) do or permit anything to be done in or about the Premises that shall in any way obstruct or interfere with the rights of other tenants or occupants of the Project, or injure or annoy them, (b) use or allow the Premises to be used for immoral, unlawful or objectionable purposes, (c) cause, maintain or permit any nuisance or waste in, on or about the Project or (d) take any other action that would in Landlord's reasonable determination in any manner adversely affect other tenants' quiet use and enjoyment of their space or adversely impact their ability to conduct business in a professional and suitable work environment. Notwithstanding anything in this Lease to the contrary, Tenant may not install any security systems (including cameras) outside the Premises or that record sounds or images outside the Premises without Landlord's prior written consent, which Landlord may withhold in its sole and absolute discretion.

12.11. Notwithstanding any other provision herein to the contrary (and without limiting Landlord's obligation with respect to the performance of the Tenant Improvements and the

Landlord Improvements, in each case to be constructed in the Premises, and payment of the Base TI Allowance and, if properly requested by Tenant pursuant to the terms of the Lease, the Additional TI Allowance), Tenant shall be responsible for all liabilities, costs and expenses arising from or in connection with the compliance of the Premises with the Americans with Disabilities Act, 42 U.S.C. § 12101, et seq., and any state and local accessibility laws, codes, ordinances and rules (collectively, and together with regulations promulgated pursuant thereto, the "ADA") during the Term, and Tenant shall Indemnify the Landlord Indemnitees from and against any Claims arising from any such failure of the Premises to comply with the ADA; provided that, Tenant shall not be obligated to make or be liable for any alterations required to be made outside of the Premises to comply with the ADA, except (a) to the extent triggered or required as a result of any Alterations performed by or on behalf of Tenant (but excluding the initial Tenant Improvements); (b) to the extent triggered or required as a result of Tenant's particular use of the Premises; (c) as part of Tenant's Adjusted Share of Operating Expenses; or (d) to the extent caused by any default by Tenant or as otherwise included as part of Tenant's indemnification obligations under this Lease. The Premises have not undergone inspection by a Certified Access Specialist ("CASp," as defined in California Civil Code Section 55.52). Even if not required by California law, the Premises may be inspected by a CASp to determine whether the Premises comply with the ADA, and Landlord may not prohibit a CASp performing such an inspection. If Tenant requests that such an inspection take place, Landlord and Tenant shall agree on the time and manner of the inspection, as well as which party will pay the cost of the inspection and the cost to remedy any defects identified by the CASp. A Certified Access Specialist can inspect the Premises and determine whether the Premises comply with all of the applicable construction-related accessibility standards under State law. Although State law does not require a Certified Access Specialist inspection of the Premises, Landlord may not prohibit Tenant from obtaining a Certified Access Specialist inspection of the Premises for the occupancy or potential occupancy of Tenant, if requested by Tenant. Landlord and Tenant shall agree on the arrangements for the time and manner of the Certified Access Specialist inspection, the payment of the fee for the Certified Access Specialist inspection, and the cost of making any repairs necessary to correct violations of construction-related accessibility standards within the Premises. The provisions of this Section shall survive the expiration or earlier termination of this Lease.

13. Rules and Regulations, CC&Rs, Parking Facilities and Common Area.

13.1. Tenant shall have the non-exclusive right, in common with others, to use the Common Area in conjunction with Tenant's use of the Premises for the Permitted Use, and such use of the Common Area and Tenant's use of the Premises shall be subject to the rules and regulations adopted by Landlord and attached hereto as Exhibit F, together with such other reasonable and nondiscriminatory rules and regulations as are hereafter promulgated by Landlord in its sole and absolute discretion (the "Rules and Regulations"). Landlord shall enforce the Rules and Regulations in a non-discriminatory manner. Tenant shall and shall ensure that its contractors, subcontractors, employees, subtenants and invitees faithfully observe and comply

with the Rules and Regulations. Landlord shall not be responsible to Tenant for the violation or non-performance by any other tenant or any agent, employee or invitee thereof of any of the Rules and Regulations.

13.2. This Lease is subject to any recorded covenants, conditions or restrictions on the Project or Property, as the same may be amended, amended and restated, supplemented or otherwise modified from time to time (the "CC&Rs"), provided that Landlord agrees not to voluntarily execute any further amendments, restatements, supplements or modifications of the CC&Rs that would materially and adversely affect Tenant's rights or obligations hereunder. Tenant shall, at its sole cost and expense, comply with the CC&Rs.

13.3. Tenant shall have a non-exclusive, irrevocable license to use one hundred thirty-eight (138) parking spaces in the parking facilities serving the Building (the "Allotted Parking Spaces"), in common on an unreserved basis with other tenants of the Building during the Term at no additional cost during the Term. Tenant shall have the right to mark (at Tenant's sole cost and expense) up to fifteen (15) visitor parking spaces for Tenant's exclusive use in the location shown on Exhibit G attached hereto and incorporated herein by reference; provided, that such designation shall constitute use thereof and such visitor parking spaces shall be part of and not in addition to the Tenant's Allotted Parking Spaces set forth above.

13.4. Tenant agrees not to unreasonably overburden the parking facilities and agrees to cooperate with Landlord and other tenants in the use of the parking facilities, provided Tenant shall not be deemed to be unreasonably overburdening the parking facilities so long as Tenant is only using Tenant's Allotted Parking Spaces in accordance with the terms of this Lease. Landlord reserves the right to determine that parking facilities are becoming overcrowded and to limit Tenant's use thereof. Upon such determination, Landlord may reasonably allocate parking spaces among Tenant and other tenants of the Building or the Project. Nothing in this Section, however, is intended to create an affirmative duty on Landlord's part to monitor parking.

13.5. Subject to the terms of this Lease including the Rules and Regulations and the rights of other tenants of the Building, Tenant shall have the non-exclusive right to access the freight loading dock, at no additional cost.

14. Project Control by Landlord.

14.1. Landlord reserves full control over the Building and the Project to the extent not inconsistent with Tenant's enjoyment of the Premises as provided by this Lease. This reservation includes Landlord's right to subdivide the Project; convert the Building and other buildings within the Project to condominium units; change the size of the Project by selling all or a portion of the Project or adding real property and any existing or new buildings and other improvements thereon to the Project; grant easements and licenses to third parties; maintain or establish ownership of the Building separate from fee title to the Property; make additions to or reconstruct portions of the Building and the Project; install, use, maintain, repair, replace and relocate for service to the Premises and other parts of the Building or the Project pipes, ducts, conduits, wires and appurtenant fixtures, wherever located in the Premises, the Building or

elsewhere at the Project; alter or relocate any other Common Area or facility, including private drives, lobbies, entrances and landscaping and consent to any of the foregoing actions by the 4575 Owner with respect to the portion of the Project owned by the 4575 Owner; provided, however, that such rights shall be exercised in a way that does not materially adversely affect Tenant's beneficial use and occupancy of the Premises, including the Permitted Use and Tenant's access to the Premises, or materially and adversely reduce or diminish Tenant's parking and signage rights under this Lease. Tenant acknowledges that Landlord specifically reserves the right to allow the exclusive use of corridors and restroom facilities located on specific floors to one or more tenants occupying such floors; provided, however, that Tenant shall not be deprived of the use of the corridors reasonably required to serve the Premises or of restroom facilities serving the floors upon which the Premises are located. Notwithstanding anything to the contrary in this Lease, Tenant acknowledges that the 4575 Owner has full control over the portion of the Project located on the 4575 Property (including all rights reserved to Landlord above) and, notwithstanding anything in this Section to the contrary, nothing herein shall in any way restrict any right that the 4575 Owner may have or may obtain in the future with respect to the portion of the Project located on the 4575 Property (or the 4575 Owner's method of exercising any such rights).

14.2. Possession of areas of the Premises necessary for utilities, services, safety and operation of the Building is reserved to Landlord.

14.3. Tenant shall, at Landlord's request, promptly execute such further documents as may be reasonably appropriate to assist Landlord in the performance of its obligations hereunder; provided that Tenant need not execute any document that creates additional liability for Tenant or that deprives Tenant of the quiet enjoyment and use of the Premises as provided for in this Lease.

14.4. Landlord may, at any and all reasonable times during non-business hours (or during business hours, if (a) with respect to Subsections 14.4(m) through 14.4(q), Tenant so requests, and (b) with respect to Subsection 14.4(r), if Landlord so requests), and upon twenty-four (24) hours' prior notice (which may be oral or by email to the office manager or other Tenant-designated individual at the Premises; but provided that no time restrictions shall apply or advance notice be required if an emergency necessitates immediate entry), enter the Premises to (m) inspect the same and to determine whether Tenant is in compliance with its obligations hereunder, (n) supply any service Landlord is required to provide hereunder, (o) alter, improve or repair any portion of the Building other than the Premises for which access to the Premises is reasonably necessary, (p) post notices of nonresponsibility, (q) access the telephone equipment, electrical substation and fire risers and (r) show the Premises to prospective tenants during the final year of the Term and current and prospective purchasers and lenders at any time. In connection with any such alteration, improvement or repair as described in Subsection 14.4(o), Landlord may erect in the Premises or elsewhere in the Project scaffolding and other structures reasonably required for the alteration, improvement or repair work to be performed. In no event shall Tenant's Rent abate as a result of Landlord's activities pursuant to this Section; provided, however, that all such activities shall be conducted in such a manner so as to cause as little

interference to Tenant as is reasonably possible. Landlord shall at all times retain a key with which to unlock all of the doors in the Premises. If an emergency necessitates immediate access to the Premises, Landlord may use whatever force is necessary to enter the Premises, and any such entry to the Premises shall not constitute a forcible or unlawful entry to the Premises, a detainer of the Premises, or an eviction of Tenant from the Premises or any portion thereof.

15. Quiet Enjoyment. Landlord covenants that Tenant, upon paying the Rent and performing its obligations contained in this Lease, may peacefully and quietly have, hold and enjoy the Premises, free from any claim by Landlord or persons claiming under Landlord, but subject to all of the terms and provisions hereof, provisions of Applicable Laws and rights of record to which this Lease is or may become subordinate. This covenant is in lieu of any other quiet enjoyment covenant, either express or implied.

16. Utilities and Services.

16.1. During the Term, Tenant shall pay for all water (including the cost to service, repair and replace reverse osmosis, de-ionized and other treated water), gas, heat, light, power, telephone, internet service, cable television, other telecommunications and other utilities supplied to the Premises, together with any fees, surcharges and taxes thereon. If any such utility is not separately metered to Tenant, Tenant shall pay Tenant's Adjusted Share of all charges of such utility jointly metered with other premises as Additional Rent or, in the alternative, Landlord may, at its option, monitor the usage of such utilities by Tenant and charge Tenant with the cost of purchasing, installing and monitoring such metering equipment, which cost shall be paid by Tenant as Additional Rent. Landlord may base its bills for utilities on reasonable estimates; provided that Landlord adjusts such billings as part of the next Landlord's Statement (or more frequently, as determined by Landlord) to reflect the actual cost of providing utilities to the Premises. To the extent that Tenant uses more than Tenant's Pro Rata Share of any utilities, then Tenant shall pay Landlord for Tenant's Adjusted Share of such utilities to reflect such excess. In the event that the Building or Project is less than fully occupied during a calendar year, Tenant acknowledges that Landlord and/or the 4575 Owner may extrapolate utility usage that varies depending on the occupancy of the Building or Project (as applicable) to equal Landlord's or the 4575 Owner's (as applicable) reasonable estimate of what such utility usage would have been had the Building or Project, as applicable, been ninety-five percent (95%) occupied during such calendar year; provided, however, that Landlord shall not recover more than one hundred percent (100%) of the cost of such utilities. Tenant shall not be liable for the cost of utilities supplied to the Premises attributable to the time period prior to the Term Commencement Date; provided, however, that, if Landlord shall permit Tenant possession of the Premises prior to the Term Commencement Date and Tenant uses the Premises for the conduct of Tenant's business, then Tenant shall be responsible for the cost of utilities supplied to the Premises from such earlier date of possession.

16.2. Landlord shall not be liable for, nor shall any eviction of Tenant result from, the failure to furnish any utility or service, whether or not such failure is caused by accidents; breakage; casualties (to the extent not caused by the party claiming Force Majeure); Severe Weather Conditions (as defined below); physical natural disasters (but excluding weather

conditions that are not Severe Weather Conditions); strikes, lockouts or other labor disturbances or labor disputes (other than labor disturbances and labor disputes resulting solely from the acts or omissions of the party claiming Force Majeure); acts of terrorism; riots or civil disturbances; wars or insurrections; shortages of materials (which shortages are not unique to the party claiming Force Majeure); government regulations, moratoria or other governmental actions, inactions or delays; failures to grant consent or delays in granting consent by any Lender whose consent is required under any applicable Loan Document; failures by third parties to deliver gas, oil or another suitable fuel supply, or inability of the party claiming Force Majeure, by exercise of reasonable diligence, to obtain gas, oil or another suitable fuel; or other causes beyond the reasonable control of the party claiming that Force Majeure has occurred (collectively, "Force Majeure"); or, to the extent permitted by Applicable Laws, Landlord's negligence. In the event of such failure, Tenant shall not be entitled to termination of this Lease or any abatement or reduction of Rent, nor shall Tenant be relieved from the operation of any covenant or agreement of this Lease. "Severe Weather Conditions" means weather conditions that are materially worse than those that reasonably would be anticipated for the Property at the applicable time based on historic meteorological records. Notwithstanding anything to the contrary in this Lease, if, for more than five (5) consecutive business days following written notice to Landlord and as a direct result of Landlord's gross negligence or willful misconduct (and except to the extent that such failure arises from any other factor, including any action or inaction of a Tenant Party (as defined below)), the provision of HVAC or other utilities to all or a material portion of the Premises that Landlord must provide pursuant to this Lease is interrupted (a "Material Services Failure"), then Base Rent and Tenant's Adjusted Share of Operating Expenses (or, to the extent that less than all of the Premises are affected, a proportionate amount (based on the Rentable Area of the Premises that is rendered unusable) of Base Rent and Tenant's Adjusted Share of Operating Expenses) shall thereafter be abated until the Premises are again usable by Tenant for the Permitted Use; provided, however, that, if Landlord is diligently pursuing the restoration of such HVAC and other utilities and Landlord provides substitute HVAC and other utilities reasonably suitable for Tenant's continued use and occupancy of the Premises for the Permitted Use (e.g., supplying potable water or portable air conditioning equipment), then neither Base Rent nor Tenant's Adjusted Share of Operating Expenses shall be abated. During any Material Services Failure, Tenant will cooperate with Landlord to arrange for the provision of any interrupted utility services on an interim basis via temporary measures until final corrective measures can be accomplished, and Tenant will permit Landlord the necessary access to the Premises to remedy such Material Service Failure. In the event of any interruption of HVAC or other utilities that Landlord must provide pursuant to this Lease, regardless of the cause, Landlord shall diligently pursue the restoration of such HVAC and other utilities. Notwithstanding anything in this Lease to the contrary, but subject to Article 24 (which shall govern in the event of a casualty), the provisions of this Section shall be Tenant's sole recourse and remedy in the event of an interruption of HVAC or other utilities to the Premises, including related to Section 16.8.

16.3. Tenant shall pay for, prior to delinquency of payment therefor, any utilities and services that may be furnished to the Premises during or, if Tenant occupies the Premises after the expiration or earlier termination of the Term, after the Term, beyond those utilities provided

by Landlord, including telephone, internet service, cable television and other telecommunications, together with any fees, surcharges and taxes thereon. Upon Landlord's demand, utilities and services provided to the Premises that are separately metered shall be paid by Tenant directly to the supplier of such utilities or services.

16.4. Tenant shall not, without Landlord's prior written consent, which consent shall not be unreasonably withheld, conditioned or delayed, use any device in the Premises (including data processing machines) that will in any way (a) increase the amount of ventilation, air exchange, gas, steam, electricity or water required or consumed in the Premises based upon Tenant's Pro Rata Share of the Building or Project (as applicable) beyond the existing capacity of the Building or the Project usually furnished or supplied for the Permitted Use or (b) exceed Tenant's Pro Rata Share of the Building's or Project's (as applicable) capacity to provide such utilities or services.

16.5. If Tenant shall require utilities or services in excess of those usually furnished or supplied for tenants in similar spaces in the Building or the Project by reason of Tenant's equipment or extended hours of business operations, then Tenant shall first procure Landlord's consent for the use thereof, which consent Landlord may condition upon the availability of such excess utilities or services, and Tenant shall pay as Additional Rent an amount equal to the cost of providing such excess utilities and services.

16.6. Landlord shall provide, or cause to be provided, water in Common Area for lavatory and landscaping purposes only, which water shall be from the local municipal or similar source; provided, however, that if Landlord determines that Tenant requires, uses or consumes water provided to the Common Area for any purpose other than ordinary lavatory purposes, Landlord may install a water meter ("Tenant Water Meter") and thereby measure Tenant's water consumption for all purposes. Tenant shall pay Landlord for the costs of any Tenant Water Meter and the installation and maintenance thereof during the Term. If Landlord installs a Tenant Water Meter, Tenant shall pay for water consumed, as shown on such meter, as and when bills are rendered. If Tenant fails to timely make such payments, Landlord may pay such charges and collect the same from Tenant. Any such costs or expenses incurred or payments made by Landlord for any of the reasons or purposes stated in this Section shall be deemed to be Additional Rent payable by Tenant and collectible by Landlord as such.

16.7. Landlord reserves the right to stop service of the elevator, plumbing, ventilation, air conditioning and utility systems (each, a "Service Stoppage"), when Landlord deems necessary or desirable, due to accident, emergency or the need to make repairs, alterations or improvements, until such repairs, alterations or improvements shall have been completed, and Landlord shall further have no responsibility or liability for failure to supply elevator facilities, plumbing, ventilation, air conditioning or utility service when prevented from doing so by Force Majeure or, to the extent permitted by Applicable Laws, Landlord's negligence. Without limiting the foregoing, it is expressly understood and agreed that any covenants on Landlord's

part to furnish any service pursuant to any of the terms, covenants, conditions, provisions or agreements of this Lease, or to perform any act or thing for the benefit of Tenant, shall not be deemed breached if Landlord is unable to furnish or perform the same by virtue of Force Majeure or, to the extent permitted by Applicable Laws, Landlord's negligence. Except in the case of emergencies (in which event no notice (or effort to provide notice) shall be required), Landlord shall provide Tenant with twenty-four (24) hours' notice prior to any Service Stoppage (which notice may be oral or by email to the office manager or other Tenant-designated individual at the Premises).

16.8. Tenant shall be entitled to use its proportionate share (after deducting any power from the Generator required for the Common Area) of power from the existing back-up generator at the Building as of the Execution Date (the "Generator") on a non-exclusive basis with other tenants in the Building. The cost of maintaining, repairing and replacing the Generator shall constitute Operating Expenses. Landlord expressly disclaims any warranties with regard to the Generator or the installation thereof, including any warranty of merchantability or fitness for a particular purpose. Landlord shall maintain the Generator and any equipment connecting the Generator to Tenant's automatic transfer switch in good working condition, provided, however, that Tenant shall be solely responsible, at Tenant's sole cost and expense (and Landlord shall not be liable) for maintaining and operating Tenant's automatic transfer switch and the distribution of power from Tenant's automatic transfer switch throughout the Premises, and provided further that Landlord shall not be liable for any failure to make any repairs or to perform any maintenance of the Generator that is an obligation of Landlord unless and except to the extent that Landlord willfully fails to make such repairs or perform such maintenance and such failure persists for an unreasonable time after Tenant provides Landlord with written notice of the need for such repairs or maintenance. Upon receipt of such written notice, Landlord shall promptly commence to cure such failure and shall diligently prosecute the same to completion in accordance with Section 31.12 of this Lease. The provisions of Section 16.2 of this Lease shall apply to the Generator.

16.9. For the Premises, Landlord shall (a) maintain and operate the HVAC systems used for the Permitted Use only ("Base HVAC") and (b) furnish HVAC as reasonably required (except as this Lease otherwise provides) for reasonably comfortable occupancy of the Premises for the Permitted Use twenty-four (24) hours a day, every day during the Term, subject to casualty, eminent domain or as otherwise specified in this Article. Notwithstanding anything to the contrary in this Section, Landlord shall have no liability, and Tenant shall have no right or remedy, on account of any interruption or impairment in HVAC services; except as provided in Section 16.2.

16.10. For any utilities serving the Premises for which Tenant is billed directly by such utility provider, Tenant agrees to furnish to Landlord (a) any invoices or statements for such utilities within thirty (30) days after Landlord's written request therefor, (b) within thirty (30) days after Landlord's request, any other utility usage information reasonably requested by Landlord, and (c) within thirty (30) days after each calendar year during the Term, authorization to allow Landlord to access Tenant's usage information necessary for Landlord to complete an

ENERGY STAR® Statement of Performance (or similar comprehensive utility usage report (e.g., related to Labs 21), if requested by Landlord) and any other information reasonably requested by Landlord for the immediately preceding year; and Tenant shall comply with any other energy usage or consumption requirements required by Applicable Laws. Tenant shall retain records of utility usage at the Premises, including invoices and statements from the utility provider, for at least sixty (60) months, or such other period of time as may be requested by Landlord. Tenant acknowledges that any utility information for the Premises, the Building and the Project may be shared with third parties, including Landlord's consultants and Governmental Authorities. In the event that Tenant fails to comply with this Section, Tenant hereby authorizes Landlord to collect utility usage information directly from the applicable utility providers. In addition to the foregoing, Tenant shall comply with all Applicable Laws related to the disclosure and tracking of energy consumption at the Premises. The provisions of this Section shall survive the expiration or earlier termination of this Lease.

17. Alterations.

17.1. Tenant shall make no alterations, additions or improvements in or to the Premises or engage in any construction, demolition, reconstruction, renovation or other work (whether major or minor) of any kind in, at or serving the Premises ("Alterations") without Landlord's prior written approval, which approval may be subject to the consent of one or more Lenders, if required under any applicable Loan Document, but which approval Landlord shall not otherwise unreasonably withhold, condition or delay; provided, however, that, in the event any proposed Alteration affects (a) any structural portions of the Building, including exterior walls, the roof, the foundation or slab, foundation or slab systems (including barriers and subslab systems) or the core of the Building, (b) the exterior of the Building or (c) any Building systems, including elevator, plumbing, HVAC, electrical, security, life safety and power, then Landlord may withhold its approval in its sole and absolute discretion. Tenant shall, in making any Alterations, use only those architects, contractors, suppliers and mechanics of which Landlord has given prior written approval, which approval shall not be unreasonably withheld, conditioned or delayed. In seeking Landlord's approval, Tenant shall provide Landlord, at least sixty (60) days in advance of the desired commencement date of any proposed construction, with plans, specifications, bid proposals, certified stamped engineering drawings and calculations by Tenant's engineer of record or architect of record (including connections to the Building's structural system, modifications to the Building's envelope, non-structural penetrations in slabs or walls, and modifications or tie-ins to life safety systems), work contracts, requests for laydown areas and such other information concerning the nature and cost of the Alterations as Landlord may reasonably request, provided that Tenant shall not commence any such Alterations that require Landlord's consent unless and until Tenant has received the written approval of Landlord and any and all Lenders whose consent is required under any applicable Loan Document. In no event shall Tenant use or Landlord be required to approve any architects, consultants, contractors, subcontractors or material suppliers that Landlord reasonably believes could cause labor disharmony or may not have sufficient experience, in Landlord's reasonable opinion, to perform

work in an occupied Class "A" laboratory research building and in tenant-occupied lab areas. Notwithstanding the foregoing, Tenant may make strictly cosmetic changes to the Premises that do not require any permits or more than three (3) total contractors and subcontractors ("Cosmetic Alterations") without Landlord's consent; provided that (y) the cost of any Cosmetic Alterations does not exceed Fifty Thousand Dollars ($50,000) in any one instance or One Hundred Thousand Dollars ($100,000) annually, (z) such Cosmetic Alterations are not reasonably expected to have any material adverse effect on the Project and do not (i) require any structural or other substantial modifications to the Premises, (ii) require any changes to or adversely affect the Building systems, (iii) affect any portion of the Building or Project that is exterior to the Premises or (iv) trigger any requirement under Applicable Laws that would require Landlord to make any alteration or improvement to the Premises, the Building or the Project.

17.2. Tenant shall not construct or permit to be constructed partitions or other obstructions that might interfere with free access to mechanical installation or service facilities of the Building or with other tenants' components located within the Building, or interfere with the moving of Landlord's equipment to or from the enclosures containing such installations or facilities.

17.3. Tenant shall accomplish any work performed on the Premises or the Building in such a manner as to permit any life safety systems to remain fully operable at all times.

17.4. Any work performed on the Premises, the Building or the Project by Tenant or Tenant's contractors shall be done at such times and in such manner as Landlord may from time to time reasonably designate. Tenant covenants and agrees that all work done by Tenant or Tenant's contractors shall be performed in full compliance with Applicable Laws. Within thirty (30) days after completion of any Alterations (other than Cosmetic Alterations), Tenant shall provide Landlord with complete "as built" drawing print sets and electronic CADD files on disc (or files in such other current format in common use as Landlord reasonably approves or requires) showing any changes in the Premises, as well as a commissioning report prepared by a licensed, qualified commissioning agent hired by Tenant and approved by Landlord for all new or affected mechanical, electrical and plumbing systems. Any such "as built" plans shall show the applicable Alterations as an overlay on the Building as-built plans; provided that Landlord provides the Building "as built" plans to Tenant.

17.5. Before commencing any Alterations, Tenant shall (a) give Landlord at least sixty (60) days' prior written notice of the proposed commencement of such work and the names and addresses of the persons supply labor or materials therefor so that Landlord may enter the Premises to post and keep posted thereon and therein notices or to take any further action that Landlord may reasonably deem proper for the protection of Landlord's interest in the Project and (b) shall, if reasonably required by Landlord, secure, at Tenant's own cost and expense, a completion and lien indemnity bond reasonably satisfactory to Landlord for such work.

17.6. Tenant shall repair any damage to the Premises arising from Tenant's removal of any property from the Premises. During any such restoration period, Tenant shall pay Rent to Landlord as provided herein as if such space were otherwise occupied by Tenant. The provisions of this Section shall survive the expiration or earlier termination of this Lease.

17.7. The Premises plus any Alterations; Signage; Tenant Improvements; attached equipment, decorations, fixtures and trade fixtures; movable laboratory casework and related components, connection valves and lab shelving; and other additions and improvements attached to or built into the Premises made by either of the parties (including all floor and wall coverings; paneling; sinks and related plumbing fixtures; laboratory benches; exterior venting fume hoods; walk-in freezers and refrigerators; ductwork; conduits; electrical panels and circuits; attached machinery and equipment; and built-in furniture and cabinets, in each case, together with all additions and accessories thereto), shall (unless, prior to such construction or installation, Landlord elects otherwise in writing) at all times remain the property of Landlord, shall remain in the Premises and shall (unless, prior to construction or installation thereof, Landlord elects otherwise in writing) be surrendered to Landlord upon the expiration or earlier termination of this Lease. For the avoidance of doubt, the items listed on Exhibit H attached hereto (which Exhibit H may be updated by Tenant from and after the Term Commencement Date, subject to Landlord's written consent, which consent shall not be unreasonably withheld, conditioned or delayed) constitute Tenant's property and shall be removed by Tenant upon the expiration or earlier termination of the Lease.

17.8. Notwithstanding any other provision of this Article to the contrary, in no event shall Tenant remove any improvement from the Premises in which any Lender has a security interest or as to which Landlord contributed payment, including the Tenant Improvements, without Landlord's prior written consent, which consent Landlord may withhold in its sole and absolute discretion. In no event shall Tenant be required to remove or restore the Tenant Improvements as of the expiration or earlier termination of this Lease.

17.9. If Tenant shall fail to remove any of its property from the Premises prior to the expiration or earlier termination of this Lease, then Landlord may, at its option, remove the same in any manner that Landlord shall choose and store such effects without liability to Tenant for loss thereof or damage thereto, and Tenant shall pay Landlord, upon demand, any costs and expenses incurred due to such removal and storage or Landlord may, at its sole option and without notice to Tenant, sell such property or any portion thereof at private sale and without legal process for such price as Landlord may obtain and apply the proceeds of such sale against any (a) amounts due by Tenant to Landlord under this Lease and (b) any expenses incident to the removal, storage and sale of such personal property.

17.10. Tenant shall pay to Landlord an amount equal to two percent (2%) of the cost to Tenant of all Alterations to cover Landlord's overhead and expenses for plan review, engineering review, coordination, scheduling and supervision thereof or obtaining any required Lenderconsent. For purposes of payment of such sum, Tenant shall submit to Landlord copies of all

bills, invoices and statements covering the costs of such charges, accompanied by payment to Landlord of the fee set forth in this Section. Tenant shall reimburse Landlord for any extra expenses incurred by Landlord by reason of faulty work done by Tenant or its contractors, or by reason of delays arising from such faulty work, or by reason of inadequate clean-up.

17.11. Within sixty (60) days after final completion of any Alterations performed by Tenant with respect to the Premises, Tenant shall submit to Landlord documentation showing the amounts expended by Tenant with respect to such Alterations, together with supporting documentation reasonably acceptable to Landlord.

17.12. Tenant shall take, and shall cause its contractors to take, commercially reasonable steps to protect the Premises during the performance of any Alterations, including covering or temporarily removing any window coverings so as to guard against dust, debris or damage.

17.13. Tenant shall require its contractors and subcontractors performing work on the Premises to name Landlord and its affiliates and Lenders as additional insureds on their respective insurance policies.

18. Repairs and Maintenance.

18.1. Landlord, with respect to any portion of the Project on the Property shall (and with respect to any portion of the Project located on the 4575 Property, shall use commercially reasonable efforts to cause the 4575 Owner to) repair and maintain the structural and exterior portions and Common Area of the Building and the Project, including roofing and covering materials; foundations (excluding any architectural slabs, but including any structural slabs); exterior walls; exterior doors; base Building plumbing; base Building municipal water treatment systems and equipment (but specifically excluding any reverse osmosis, de-ionized and/or other treated water systems); fire sprinkler systems (if any); base Building HVAC systems up to the first damper or isolation valve that serves the Premises (for purposes of clarity, the portion of the HVAC system that includes such first damper or isolation valve and extends into and through the Premises, and any supplemental HVAC serving the Premises shall not be part of the base Building HVAC and shall be Tenant's obligation to maintain and repair pursuant to Section 18.2 below); elevators; and base Building electrical systems installed or furnished by Landlord. For the avoidance of doubt, to the extent Tenant becomes responsible for the repair and maintenance of any of the items in this Section above with respect to the 4575 Property as a result of Tenant's exercise of the 4575 Option, Landlord's obligations under this Section shall be automatically amended to remove any and all of Landlord's obligations with respect to such repair and maintenance.

18.2. Except for services of Landlord, if any, required by Section 18.1, during the Term, Tenant shall, at Tenant's sole cost and expense, maintain and keep the Premises (including but not limited to the portion of the HVAC system that includes the first damper or isolation valve and extends into and through the Premises, any supplemental HVAC serving the Premises, and any other systems or equipment exclusively serving the Premises) and every part thereof in good condition and repair, damage thereto from ordinary wear and tear excepted, and

shall, within ten (10) days after receipt of written notice from Landlord, provide to Landlord any maintenance records that Landlord reasonably requests. Tenant shall, upon the expiration or sooner termination of the Term, surrender the Premises to Landlord in as good a condition as when received, ordinary wear and tear excepted; and shall, at Landlord's request and Tenant's sole cost and expense, remove all telephone and data systems, wiring and equipment from the Premises (but with respect to wiring, only to the extent installed by a Tenant Party), and repair any damage to the Premises caused thereby. Landlord shall have no obligation to alter, remodel, improve, repair, decorate or paint the Premises or any part thereof, other than pursuant to the terms and provisions of the Work Letter and as expressly set forth in Article 5.

18.3. Without limiting the provisions of Section 16.2, Landlord shall not be liable for any failure to make any repairs (or cause any repairs to be made) or to perform (or cause the performance of) any maintenance that is Landlord's obligation pursuant to this Lease unless such failure shall persist for an unreasonable time after Tenant provides Landlord with written notice of the need of such repairs or maintenance. Tenant waives its rights under Applicable Laws now or hereafter in effect to make repairs at Landlord's expense.

18.4. Subject to the provisions of Section 14.4, any excavation shall be made upon land adjacent to or under the Building, or shall be authorized to be made, Tenant shall afford to the person causing or authorized to cause such excavation, license to enter the Premises for the purpose of performing such work as such person shall deem necessary or desirable to preserve and protect the Building from injury or damage and to support the same by proper foundations, without any claim for damages or liability against Landlord and without reducing or otherwise affecting Tenant's obligations under this Lease.

18.5. This Article relates to repairs and maintenance arising in the ordinary course of operation of the Building and the Project. In the event of a casualty described in Article 24, Article 24 shall apply in lieu of this Article. In the event of eminent domain, Article 25 shall apply in lieu of this Article.

18.6. Subject to the provisions of Article 9, costs incurred by Landlord and/or the 4575 Owner pursuant to this Article shall constitute Operating Expenses.

19. Liens.

19.1. Subject to the immediately succeeding sentence, Tenant shall keep the Premises, the Building and the Project free from any liens arising from work or services performed, materials furnished to or obligations incurred by Tenant. Tenant further covenants and agrees that any mechanic's or materialman's lien filed against the Premises, the Building or the Project for work or services claimed to have been done for, or materials claimed to have been furnished to, or obligations incurred by Tenant shall be discharged or bonded by Tenant within ten (10) days after the filing thereof, at Tenant's sole cost and expense.

19.2. Should Tenant fail to discharge or bond against any lien of the nature described in Section 19.1, Landlord may, at Landlord's election, pay such claim or post a statutory lien bond

or otherwise provide security to eliminate the lien as a claim against title, and Tenant shall immediately reimburse Landlord for the costs thereof as Additional Rent. Tenant shall Indemnify the Landlord Indemnitees from and against any Claims arising from any such liens, including any administrative, court or other legal proceedings related to such liens.

19.3. In the event that Tenant leases or finances the acquisition of office equipment, furnishings or other personal property of a removable nature utilized by Tenant in the operation of Tenant's business, Tenant warrants that any Uniform Commercial Code financing statement shall, upon its face or by exhibit thereto, indicate that such financing statement is applicable only to removable personal property of Tenant located within the Premises. In no event shall the address of the Premises, the Building or the Project be furnished on a financing statement without qualifying language as to applicability of the lien only to removable personal property located in an identified suite leased by Tenant. Should any holder of a financing statement record or place of record a financing statement that appears to constitute a lien against any interest of Landlord or against equipment that may be located other than within an identified suite leased by Tenant, Tenant shall, within ten (10) days after filing such financing statement, cause (a) a copy of the lender security agreement or other documents to which the financing statement pertains to be furnished to Landlord to facilitate Landlord's ability to demonstrate that the lien of such financing statement is not applicable to Landlord's interest and (b) Tenant's lender to amend such financing statement and any other documents of record to clarify that any liens imposed thereby are not applicable to any interest of Landlord in the Premises, the Building or the Project.

20. Estoppel Certificate. Tenant shall, within ten (10) business days after receipt of written notice from Landlord, execute, acknowledge and deliver a statement in writing substantially in the form attached to this Lease as Exhibit I, or on any other commercially reasonable form requested by a current or proposed Lender or encumbrancer or proposed purchaser, (a) certifying that this Lease is unmodified and in full force and effect (or, if modified, stating the nature of such modification and certifying that this Lease as so modified is in full force and effect) and the dates to which rental and other charges are paid in advance, if any, (b) acknowledging that there are not, to Tenant's knowledge, any uncured defaults on the part of Landlord hereunder, or specifying such defaults if any are claimed, and (c) setting forth such further information with respect to this Lease or the Premises as may be reasonably requested thereon. Any such statements may be relied upon by any prospective purchaser or encumbrancer of all or any portion of the Property. If Tenant fails to deliver such statement within the prescribed time, Landlord shall send a second notice and if Tenant fails to respond to such second notice (by delivery of a signed estoppel) within three (3) business days, Tenant's failure to deliver such statement shall, at Landlord's option, constitute a Default (as defined below) under this Lease, and, in any event, shall be binding upon Tenant that the Lease is in full force and effect and without modification except as may be represented by Landlord in any certificate prepared by Landlord and delivered to Tenant for execution. Within ten (10) business days of receipt of a written request by Tenant, Landlord shall provide Tenant with a similar estoppel certificate (but in all cases limited to Landlord's actual knowledge (without any duty of investigation)) as Landlord reasonably deems appropriate and as otherwise reasonably modified by Landlord.

21. Hazardous Materials.

21.1. Tenant shall not cause or permit any Hazardous Materials (as defined below) to be brought upon, kept or used in or about the Premises, the Building or the Project in violation of Applicable Laws by Tenant or any of its employees, agents, contractors or invitees (collectively with Tenant, each a "Tenant Party"). If (a) Tenant breaches such obligation, (b) the presence of Hazardous Materials as a result of such a breach results in contamination of the Project, any portion thereof, or any adjacent property, (c) contamination of the Premises otherwise occurs during the Term or any extension or renewal hereof or holding over hereunder or (d) contamination of the Project occurs as a result of Hazardous Materials that are placed on or under or are released into the Project by a Tenant Party, then Tenant shall Indemnify the Landlord Indemnitees from and against any and all Claims of any kind or nature, including (w) diminution in value of the Project or any portion thereof, (x) damages for the loss or restriction on use of rentable or usable space or of any amenity of the Project, (y) damages arising from any adverse impact on marketing of space in the Project or any portion thereof and (z) sums paid in settlement of Claims that arise before, during or after the Term as a result of such breach or contamination. This Indemnification by Tenant includes costs incurred in connection with any investigation of site conditions or any clean-up, remedial, removal or restoration work required by any Governmental Authority because of Hazardous Materials present in the air, soil or groundwater above, on, under or about the Project. Without limiting the foregoing, if the presence of any Hazardous Materials in, on, under or about the Project, any portion thereof or any adjacent property caused or permitted by any Tenant Party results in any contamination of the Project, any portion thereof or any adjacent property, then Tenant shall promptly take all actions at its sole cost and expense as are necessary to return the Project, any portion thereof or any adjacent property to its respective condition existing prior to the time of such contamination; provided that Landlord's written approval of such action shall first be obtained, which approval Landlord shall not unreasonably withhold; and provided, further, that it shall be reasonable for Landlord to withhold its consent if such actions could have a material adverse long-term or short-term effect on the Project, any portion thereof or any adjacent property. Tenant's obligations under this Section shall not be affected, reduced or limited by any limitation on the amount or type of damages, compensation or benefits payable by or for Tenant under workers' compensation acts, disability benefit acts, employee benefit acts or similar legislation.

21.2. Landlord acknowledges that it is not the intent of this Article to prohibit Tenant from operating its business for the Permitted Use. Tenant may operate its business according to the custom of Tenant's industry so long as the use or presence of Hazardous Materials is strictly and properly monitored in accordance with Applicable Laws. As a material inducement to Landlord to allow Tenant to use Hazardous Materials in connection with its business, Tenant agrees to deliver to Landlord (a) a list identifying each type of Hazardous Material to be present at the Premises that is subject to regulation under any environmental Applicable Laws in the

form of a Tier II form pursuant to Section 312 of the Emergency Planning and Community Right-to-Know Act of 1986 (or any successor statute) or any other form reasonably requested by Landlord, (b) a list of any and all approvals or permits from Governmental Authorities required in connection with the presence of such Hazardous Material at the Premises and (c) correct and complete copies of (i) notices of violations of Applicable Laws related to Hazardous Materials and (ii) plans relating to the installation of any storage tanks to be installed in, on, under or about the Project (provided that installation of storage tanks shall only be permitted after Landlord has given Tenant its written consent to do so, which consent Landlord may withhold in its sole and absolute discretion) and closure plans or any other documents required by any and all Governmental Authorities for any storage tanks installed in, on, under or about the Project for the closure of any such storage tanks (collectively, "Hazardous Materials Documents"). Tenant shall deliver to Landlord updated Hazardous Materials Documents, within fourteen (14) days after receipt of a written request therefor from Landlord, not more often than once per year, unless (m) there are any changes to the Hazardous Materials Documents or (n) Tenant initiates any Alterations or changes its business, in either case in a way that involves any material increase in the types or amounts of Hazardous Materials, in which case Tenant shall deliver updated Hazardous Materials documents (without Landlord having to request them) before or, if not practicable to do so before, as soon as reasonably practicable after the occurrence of the events in Subsection 21.2(m) or (n). For each type of Hazardous Material listed, the Hazardous Materials Documents shall include (t) the chemical name, (u) the material state (e.g., solid, liquid, gas or cryogen), (v) the concentration, (w) the storage amount and storage condition (e.g., in cabinets or not in cabinets), (x) the use amount and use condition (e.g., open use or closed use), (y) the location (e.g., room number or other identification) and (z) if known, the chemical abstract service number. Notwithstanding anything in this Section to the contrary, Tenant shall not be required to provide Landlord with any documents containing information of a proprietary nature, unless such documents contain a reference to Hazardous Materials or activities related to Hazardous Materials. Landlord may, at Landlord's expense, cause the Hazardous Materials Documents to be reviewed by a person or firm qualified to analyze Hazardous Materials to confirm compliance with the provisions of this Lease and with Applicable Laws. In the event that a review of the Hazardous Materials Documents indicates non-compliance with this Lease or Applicable Laws, Tenant shall, at its expense, diligently take steps to bring its storage and use of Hazardous Materials into compliance. Notwithstanding anything in this Lease to the contrary or Landlord's review into Tenant's Hazardous Materials Documents or use or disposal of hazardous materials, however, Landlord shall not have and expressly disclaims any liability related to Tenant's or other tenants' use or disposal of Hazardous Materials, it being acknowledged by Tenant that Tenant is best suited to evaluate the safety and efficacy of its Hazardous Materials usage and procedures.

21.3. Tenant represents and warrants to Landlord that is not nor has it been, in connection with the use, disposal or storage of Hazardous Materials, (a) subject to a material enforcement order issued by any Governmental Authority or (b) required to take any remedial action.

21.4. At any time, and from time to time, prior to the expiration of the Term, Landlord shall have the right to conduct appropriate tests of the Project or any portion thereof to demonstrate that Hazardous Materials are present or that contamination has occurred due to the acts or omissions of a Tenant Party. Tenant shall pay all reasonable costs of such tests if such tests reveal that Hazardous Materials exist at the Project in violation of Tenant's obligations under this Lease.

21.5. If underground or other storage tanks storing Hazardous Materials installed or utilized by Tenant are located on the Premises, or are hereafter placed on the Premises by Tenant (or by any other party, if such storage tanks are utilized by Tenant), then Tenant shall monitor the storage tanks, maintain appropriate records, implement reporting procedures, properly close any underground storage tanks, and take or cause to be taken all other steps necessary or required under the Applicable Laws. Tenant shall have no responsibility or liability for underground or other storage tanks installed by anyone other than Tenant unless Tenant utilizes such tanks, in which case Tenant's responsibility for such tanks shall be as set forth in this Section.

21.6. Tenant shall promptly report to Landlord any actual or suspected presence of mold or water intrusion at the Premises of which Tenant becomes aware.

21.7. Tenant's obligations under this Article shall survive the expiration or earlier termination of the Lease. During any period of time needed by Tenant or Landlord after the termination of this Lease to complete the removal from the Premises of any such Hazardous Materials, Tenant shall be deemed a holdover tenant and subject to the provisions of Article 27.

21.8. As used herein, the term "Hazardous Material" means any toxic, explosive, corrosive, flammable, infectious, radioactive, carcinogenic, mutagenic or otherwise hazardous substance, material or waste that is or becomes regulated by Applicable Laws or any Governmental Authority.

21.9. Notwithstanding anything to the contrary in this Lease, Landlord shall have sole control over the equitable allocation of fire control areas (as defined in the Uniform Building Code as adopted by the city or municipality(ies) in which the Project is located (the "UBC")) within the Project for the storage of Hazardous Materials. Notwithstanding anything to the contrary in this Lease, the quantity of Hazardous Materials allowed by this Section is specific to Tenant and shall not run with the Lease in the event of a Transfer (as defined in Article 29). In the event of a Transfer, if the use of Hazardous Materials by such new tenant ("New Tenant") is such that New Tenant utilizes fire control areas in the Project in excess of New Tenant's Pro Rata Share of the Building or the Project, as applicable, then New Tenant shall, at its sole cost and expense and upon Landlord's written request, establish and maintain a separate area of the Premises classified by the UBC as an "H" occupancy area for the use and storage of Hazardous Materials, or take such other action as is necessary to ensure that its share of the fire control areas of the Building and the Project is not greater than New Tenant's Pro Rata Share of the Building or the Project, as applicable. Notwithstanding anything in this Lease to the contrary, Landlord

shall not have and expressly disclaims any liability related to Tenant's or other tenants' use or disposal of fire control areas, it being acknowledged by Tenant that Tenant and other tenants are best suited to evaluate the safety and efficacy of its Hazardous Materials usage and procedures.

22. Odors and Exhaust. Tenant acknowledges that Landlord would not enter into this Lease with Tenant unless Tenant assured Landlord that under no circumstances will any other occupants of the Building or the Project (including persons legally present in any outdoor areas of the Project) be subjected to odors or fumes (whether or not noxious), and that the Building and the Project will not be damaged by any exhaust, in each case from Tenant's operations. Landlord and Tenant therefore agree as follows:

22.1. Tenant shall not cause or permit (or conduct any activities that would cause) any release of any odors or fumes of any kind from the Premises.

22.2. If the Building has a ventilation system that, in Landlord's judgment, is adequate, suitable, and appropriate to vent the Premises in a manner that does not release odors affecting any indoor or outdoor part of the Project, Tenant shall vent the Premises through such system. If Landlord at any time determines that any existing ventilation system is inadequate, or if no ventilation system exists, Tenant shall in compliance with Applicable Laws vent all fumes and odors from the Premises (and remove odors from Tenant's exhaust stream) as Landlord requires. The placement and configuration of all ventilation exhaust pipes, louvers and other equipment shall be subject to Landlord's approval, which approval shall not be unreasonably withheld, conditioned or delayed. Tenant acknowledges Landlord's legitimate desire to maintain the Project (indoor and outdoor areas) in an odor-free manner, and Landlord may require Tenant to abate and remove all odors in a manner that goes beyond the requirements of Applicable Laws.

22.3. Tenant shall, at Tenant's sole cost and expense, provide odor eliminators and other devices (such as filters, air cleaners, scrubbers and whatever other equipment may in Landlord's judgment be necessary or appropriate from time to time) to completely remove, eliminate and abate any odors, fumes or other substances in Tenant's exhaust stream that, in Landlord's judgment, emanate from Tenant's Premises. Any work Tenant performs under this Section shall constitute Alterations.

22.4. Tenant's responsibility to remove, eliminate and abate odors, fumes and exhaust shall continue throughout the Term. Landlord's construction of the Tenant Improvements shall not preclude Landlord from requiring additional measures to eliminate odors, fumes and other adverse impacts of Tenant's exhaust stream (as Landlord may designate in Landlord's discretion). Tenant shall install additional equipment as Landlord requires from time to time under the preceding sentence. Such installations shall constitute Alterations.

22.5. If Tenant fails to install satisfactory odor control equipment within ten (10) business days after Landlord's demand made at any time, then Landlord may, without limiting Landlord's other rights and remedies, require Tenant to cease and suspend any operations in the

Premises that, in Landlord's determination, cause odors, fumes or exhaust. For example, if Landlord determines that Tenant's production of a certain type of product causes odors, fumes or exhaust, and Tenant does not install satisfactory odor control equipment within ten (10) business days after Landlord's request, then Landlord may require Tenant to stop producing such type of product in the Premises unless and until Tenant has installed odor control equipment satisfactory to Landlord.

23. Insurance.

23.1. Landlord, with respect to any portion of the Project on the Property shall (and with respect to any portion of the Project located on the 4575 Property, shall use commercially reasonable efforts to cause the 4575 Owner to) maintain insurance for the Building and the Project in amounts equal to full replacement cost (exclusive of the costs of excavation, foundations and footings, engineering costs or such other costs to the extent the same are not incurred in the event of a rebuild and without reference to depreciation taken by Landlord upon its books or tax returns) or such lesser coverage as Landlord may elect, provided that such coverage shall not be less than the amount of such insurance Landlord's and/or the 4575 Owner's Lender, if any, requires Landlord or the 4575 Owner to maintain, providing protection against any peril generally included within the classification "Fire and Extended Coverage," together with insurance against sprinkler damage (if applicable), vandalism and malicious mischief. Subject to availability thereof, Landlord, with respect to any portion of the Project on the Property shall (and with respect to any portion of the Project located on the 4575 Property, shall use commercially reasonable efforts to cause the 4575 Owner to) further insure, if Landlord or the 4575 Owner (as applicable) deems it appropriate, coverage against flood, environmental hazard, earthquake, loss or failure of building equipment, rental loss during the period of repairs or rebuilding, Workers' Compensation insurance and fidelity bonds for employees employed to perform services. Notwithstanding the foregoing, Landlord may, but shall not be deemed required to, provide insurance for any improvements installed by Tenant or that are in addition to the standard improvements customarily furnished by Landlord, without regard to whether or not such are made a part of or are affixed to the Building.

23.2. In addition, (a) Landlord shall carry Commercial General Liability insurance with limits of not less than One Million Dollars ($1,000,000) per occurrence/general aggregate for bodily injury (including death), or property damage with respect to the portion of the Project on the Property and (b) Landlord shall use commercially reasonable efforts to cause the 4575 Owner to carry Commercial General Liability insurance with limits of not less than One Million Dollars ($1,000,000) per occurrence/general aggregate for bodily injury (including death), or property damage with respect to the portion of the Project on the 4575 Property.

23.3. Tenant shall, at its own cost and expense, procure and maintain during the Term the following insurance for the benefit of Tenant and Landlord (as their interests may appear) with insurers financially acceptable and lawfully authorized to do business in the state where the Premises are located:

(a) Commercial General Liability insurance on a broad-based occurrence coverage form, with coverages including but not limited to bodily injury (including death), property damage (including loss of use resulting therefrom), premises/operations, personal & advertising injury, and contractual liability with limits of liability of not less than $2,000,000 for bodily injury and property damage per occurrence, $4,000,000 general aggregate, which limits may be met by use of excess and/or umbrella liability insurance; provided that such coverage is at least as broad as the primary coverages required herein.

(b) Commercial Automobile Liability insurance covering liability arising from the use or operation of any auto on behalf of Tenant or invited by Tenant (including those owned, hired, rented, leased, borrowed, scheduled or non-owned). Coverage shall be on a broad-based occurrence form in an amount not less than $2,000,000 combined single limit per accident for bodily injury and property damage. Such coverage shall apply to all vehicles and persons, whether accessing the property with active or passive consent.

(c) Commercial Property insurance covering property damage to the full replacement cost value and business interruption. Covered property shall include all tenant improvements in the Premises (to the extent not insured by Landlord pursuant to Section 23.1) and Tenant's Property including personal property, furniture, fixtures, machinery, equipment, stock, inventory and improvements and betterments, which may be owned by Tenant or Landlord and required to be insured hereunder, or which may be leased, rented, borrowed or in the care custody or control of Tenant, or Tenant's agents, employees or subcontractors. Such insurance, with respect only to all Tenant Improvements, Alterations or other work performed on the Premises by Tenant (collectively, "Tenant Work"), shall name Landlord and Landlord's current and future mortgagees as loss payees as their interests may appear. Such insurance shall be written on an "all risk" of physical loss or damage basis including the perils of fire, extended coverage, electrical injury, mechanical breakdown, windstorm, vandalism, malicious mischief, sprinkler leakage, back-up of sewers or drains, earthquake (provided Tenant shall not be required to provide earthquake coverage with respect to the initial Tenant Improvements or, subject to the last sentence in this Subsection 23.3(c), any Cosmetic Alterations, but shall be required to acquire earthquake coverage with respect to any other Tenant Work performed by or on behalf of Tenant), terrorism and such other risks Landlord may from time to time designate, for the full replacement cost value of the covered items with an agreed amount endorsement with no co-insurance. Business interruption coverage shall have limits sufficient to cover Tenant's lost profits and necessary continuing expenses, including rents due Landlord under the Lease. The minimum period of indemnity for business interruption coverage shall be twenty-four (24) months. Notwithstanding any provision in this Lease to the contrary, (i) during the construction, installation and/or performance of any Cosmetic Alterations, Tenant shall self-insure for any damage or destruction to such Cosmetic Alterations as a result of an earthquake and shall be responsible, at its sole cost and expense, for promptly repairing and restoring in accordance with all Applicable Laws any Cosmetic Alterations damaged or destroyed as a result of an earthquake, and (ii) following the completion of any Alterations (including Cosmetic Alterations), Landlord shall have the right, but not the obligation, to procure earthquake coverage or increase the limits of any earthquake coverage carried by Landlord to cover the full

replacement cost of such Alterations (including Cosmetic Alterations), the cost of which shall be paid by Tenant as part of Tenant's Adjusted Share of Operating Expenses to the extent that the earthquake coverage carried by Landlord does not overlap with any earthquake coverage required by this Section that is actually then-being carried by Tenant in accordance with the terms of this Lease.

(d) Workers' Compensation in compliance with all Applicable Laws or as may be available on a voluntary basis. Employer's Liability must be at least in the amount of $1,000,000 for bodily injury by accident for each employee, $1,000,000 for bodily injury by disease for each employee, and $1,000,000 bodily injury by disease for policy limit.

(e) Medical malpractice insurance at limits of not less than $1,000,000 each claim during such periods, if any, that Tenant engages in the practice of medicine or clinical trials involving human beings at the Premises.

(f) Pollution Legal Liability insurance is required if Tenant stores, handles, generates or treats Hazardous Materials, as determined solely by Landlord, on or about the Premises. Such coverage shall include bodily injury, sickness, disease, death or mental anguish or shock sustained by any person; property damage including physical injury to or destruction of tangible property including the resulting loss of use thereof, clean-up costs, and the loss of use of tangible property that has not been physically injured or destroyed; and defense costs, charges and expenses incurred in the investigation, adjustment or defense of claims for such compensatory damages. Coverage shall apply to both sudden and non-sudden pollution conditions including the discharge, dispersal, release or escape of smoke, vapors, soot, fumes, acids, alkalis, toxic chemicals, liquids or gases, waste materials or other irritants, contaminants or pollutants into or upon land, the atmosphere or any watercourse or body of water. Claims-made coverage is permitted, provided the policy retroactive date is continuously maintained prior to the commencement date of this agreement, and coverage is continuously maintained during all periods in which Tenant occupies the Premises. Coverage shall be maintained with limits of not less than $2,000,000 per incident with a $4,000,000 policy aggregate and for a period of two (2) years thereafter.

(g) During all construction by Tenant at the Premises, with respect to tenant improvements being constructed (including any Alterations), insurance required in Exhibit B-1 must be in place.

23.4. The insurance required of Tenant by this Article shall be with companies at all times having a current rating of not less than A- and financial category rating of at least Class VII in "A.M. Best's Insurance Guide" current edition. Tenant shall obtain for Landlord from the insurance companies/broker or cause the insurance companies/broker to furnish certificates of insurance evidencing all coverages required herein to Landlord. Landlord reserves the right to require complete, certified copies of all required insurance policies including any endorsements. No such policy shall be cancelable or subject to reduction of coverage or other modification or

cancellation except after thirty (30) days' prior written notice to Landlord from Tenant or its insurers (except in the event of non-payment of premium, in which case ten (10) days' written notice shall be given). All such policies shall be written as primary policies, not contributing with and not in excess of the coverage that Landlord may carry. Tenant's required policies shall contain severability of interests clauses stating that, except with respect to limits of insurance, coverage shall apply separately to each insured or additional insured. Tenant shall, on the date of expiration of such policies, furnish Landlord with renewal certificates of insurance or binders. Tenant agrees that if Tenant does not take out and maintain such insurance, Landlord may (but shall not be required to) procure such insurance on Tenant's behalf and at its cost to be paid by Tenant as Additional Rent. Commercial General Liability, Commercial Automobile Liability, Umbrella Liability and Pollution Legal Liability insurance as required above shall name Landlord, 4575 Owner, BioMed Realty LLC, BioMed Realty, L.P., BRE Edison L.P., BRE Edison LLC, BRE Edison Holdings L.P., BRE Edison Holdings LLC, BRE Edison Parent L.P. and their respective officers, employees, agents, general partners, members, subsidiaries, affiliates and Lenders ("Landlord Parties") as additional insureds as respects liability arising from work or operations performed by or on behalf of Tenant, Tenant's use or occupancy of Premises, and ownership, maintenance or use of vehicles by or on behalf of Tenant.

23.5. In each instance where insurance is to name Landlord Parties as additional insureds, Tenant shall, upon Landlord's written request, also designate and furnish certificates evidencing such Landlord Parties as additional insureds to (a) any Lender of Landlord holding a security interest in the Building or the Project, (b) the landlord under any lease whereunder Landlord is a tenant of the real property upon which the Building is located if the interest of Landlord is or shall become that of a tenant under a ground lease rather than that of a fee owner and (c) any management company retained by Landlord to manage the Project.

23.6. Tenant assumes the risk of damage to any fixtures, goods, inventory, merchandise, equipment and leasehold improvements, and Landlord shall not be liable for injury to Tenant's business or any loss of income therefrom, relative to such damage, all as more particularly set forth within this Lease. Tenant shall, at Tenant's sole cost and expense, carry such insurance as Tenant desires for Tenant's protection with respect to personal property of Tenant or business interruption.

23.7. Tenant, on behalf of itself and its insurers, hereby waives any and all rights of recovery against the Landlord Parties with respect to any loss, damage, claims, suits or demands, howsoever caused, that are covered, or should have been covered, by valid and collectible workers' compensation, employer's liability insurance and other liability insurance required to obtained and carried by Tenant pursuant to this Article, including any deductibles or self-insurance maintained thereunder. Tenant agrees to endorse the required workers' compensation, employer's liability and other liability insurance policies to permit waivers of subrogation as required hereunder and hold harmless and indemnify the Landlord Parties for any loss or expense incurred as a result of a failure to obtain such waivers of subrogation from insurers. Such waivers shall continue so long as Tenant's insurers so permit. Any termination of such a waiver shall be by written notice to Landlord, containing a description of the circumstances

hereinafter set forth in this Section. Tenant, upon obtaining the policies of workers' compensation, employer's liability and other liability insurance required or permitted under this Lease, shall give notice to its insurance carriers that the foregoing waiver of subrogation is contained in this Lease. If such policies shall not be obtainable with such waiver or shall be so obtainable only at a premium over that chargeable without such waiver, then Tenant shall notify Landlord of such conditions and only in the event that such waiver is not obtainable, Tenant shall not be obligated to obtain such waiver.

23.8. Landlord may require insurance policy limits required under this Lease to be raised to conform with requirements of Landlord's and/or the 4575 Owner's Lender or to bring coverage limits to levels then being required of new tenants within the Project, provided such coverage limits are reasonably consistent with those required by landlords of similarly situated buildings.

23.9. In addition to other insurance required by this Lease to be carried by Tenant, if Tenant sells, merchandises, transfers, gives away or exchanges so-called "alcoholic liquors" in, upon or from any part of the Premises, then Tenant shall, at Tenant's sole cost and expense, purchase and maintain in full force and effect during the Term dram shop insurance in form and substance satisfactory to Landlord, with total limits of liability for bodily injury, loss of means of support and property damage for each occurrence in an amount and with a carrier reasonably acceptable to Landlord, and otherwise in compliance with the general provisions of this Article governing the provision of insurance by Tenant. Such policy shall name Landlord and the Landlord Parties as additional insureds against any liability by virtue of Applicable Laws concerning the use, sale or giving away of alcoholic liquors. If at any time such insurance is for any reason not in force, then during all and any such times no selling, merchandising, transferring, giving away or exchanging of so-called "alcoholic liquors" shall be conducted by Tenant in, upon or from any part of the Premises.

23.10. Any costs incurred by Landlord and/or the 4575 Owner pursuant to this Article shall constitute a portion of Operating Expenses.

23.11. The provisions of this Article shall survive the expiration or earlier termination of this Lease.

24. Damage or Destruction.

24.1. In the event of a partial destruction of (a) the Premises, (b) the Building, (c) the Common Area on the Property or (d) the portion of the Project on the Property ((a)-(d) collectively, the "Affected Areas") by fire or other perils covered by extended coverage insurance not exceeding twenty-five percent (25%) of the full insurable value thereof, and provided that (w) the damage thereto is such that the Affected Areas may be repaired, reconstructed or restored within a period of six (6) months from the date of the happening of such casualty, (x) Landlord shall receive insurance proceeds from its insurer or Lender sufficient to cover the cost of such repairs, reconstruction and restoration (except for any deductible amount provided by Landlord's policy, which deductible amount, if paid by Landlord, shall

constitute an Operating Expense), (y) the repair, reconstruction or restoration of the Affected Areas is permitted by all applicable Loan Documents or otherwise consented to by any and all Lenders whose consent is required thereunder and (z) such casualty was not intentionally caused by a Tenant Party, then Landlord shall commence and proceed diligently with the work of repair, reconstruction and restoration of the Affected Areas and this Lease shall continue in full force and effect.

24.2. In the event of any damage to or destruction of the Affected Areas other than as described in Section 24.1, Landlord may elect to repair, reconstruct and restore the applicable Affected Areas, as applicable, in which case this Lease shall continue in full force and effect. If Landlord elects not to repair, reconstruct and restore the applicable Affected Areas, then this Lease shall terminate as of the date of such damage or destruction. In the event of any damage or destruction (regardless of whether such damage is governed by Section 24.1 or this Section), if (a) in Landlord's determination as set forth in the Damage Repair Estimate (as defined below), the Affected Areas cannot be repaired, reconstructed or restored within twelve (12) months after the date of the Damage Repair Estimate, (b) subject to Section 24.6, the Affected Areas are not actually repaired, reconstructed and restored within eighteen (18) months after the date of the Damage Repair Estimate, or (c) the damage and destruction occurs within the last twelve (12) months of the then-current Term, then Tenant shall have the right to terminate this Lease, effective as of the date of such damage or destruction, by delivering to Landlord its written notice of termination (a "Termination Notice") (y) with respect to Subsections 24.2(a) and (c), no later than fifteen (15) days after Landlord delivers to Tenant Landlord's Damage Repair Estimate and (z) with respect to Subsection 24.2(b), no later than fifteen (15) days after such eighteen (18) month period (as the same may be extended pursuant to Section 24.6) expires. If Tenant provides Landlord with a Termination Notice pursuant to Subsection 24.2(z), Landlord shall have an additional thirty (30) days after receipt of such Termination Notice to complete the repair, reconstruction and restoration. If Landlord does not complete such repair, reconstruction and restoration within such thirty (30) day period, then Tenant may terminate this Lease by giving Landlord written notice within two (2) business days after the expiration of such thirty (30) day period. If Landlord does complete such repair, reconstruction and restoration within such thirty (30) day period, then this Lease shall continue in full force and effect. Notwithstanding anything to the contrary, in no event shall Landlord have any obligation to repair, reconstruct or restore any portion of the Project located on the 4575 Property or on any other property not owned by Landlord.

24.3. As soon as reasonably practicable, but in any event within sixty (60) days following the date of damage or destruction, Landlord shall notify Tenant of Landlord's good faith estimate of the period of time in which the repairs, reconstruction and restoration will be completed (the "Damage Repair Estimate"), which estimate shall be based upon the opinion of a contractor reasonably selected by Landlord and experienced in comparable repair, reconstruction and restoration of similar buildings. Additionally, Landlord shall give written notice to Tenant within sixty (60) days following the date of damage or destruction of its election not to repair, reconstruct or restore the applicable Affected Areas.

24.4. Upon any termination of this Lease under any of the provisions of this Article, the parties shall be released thereby without further obligation to the other from the date possession of the Premises is surrendered to Landlord, except with regard to (a) items occurring prior to the damage or destruction and (b) provisions of this Lease that, by their express terms, survive the expiration or earlier termination hereof.

24.5. In the event of repair, reconstruction and restoration as provided in this Article, all Rent to be paid by Tenant under this Lease shall be abated proportionately based on the extent to which Tenant's use of the Premises is impaired during the period of time commencing on the date of the damage or destruction and continuing until the substantial completion of such repair, reconstruction or restoration, unless Landlord provides Tenant with other space during the period of repair, reconstruction and restoration that, in Tenant's reasonable opinion, is suitable for the temporary conduct of Tenant's business; provided, however, that the amount of such abatement shall be reduced by the amount of Rent that is received by Tenant as part of the business interruption or loss of rental income with respect to the Premises from the proceeds of business interruption or loss of rental income insurance.

24.6. Notwithstanding anything to the contrary contained in this Article, (a) Landlord shall not be required to repair, reconstruct or restore any damage or destruction to the extent that Landlord is prohibited from doing so by any applicable Loan Document or any Lender whose consent is required thereunder withholds its consent, and (b) should Landlord be delayed or prevented from completing the repair, reconstruction or restoration of the damage or destruction to the Premises after the occurrence of such damage or destruction by Force Majeure or delays caused by a Lender or Tenant Party, then the time for Landlord to commence or complete repairs, reconstruction and restoration shall be extended on a day-for-day basis; provided, however, that, at Landlord's election, Landlord shall be relieved of its obligation to make such repairs, reconstruction and restoration.

24.7. If Landlord is obligated to or elects to repair, reconstruct or restore as herein provided, then Landlord shall be obligated to make such repairs, reconstruction or restoration only with regard to (a) those portions of the Premises that were originally provided at Landlord's expense and (b) the Common Area portion of the Affected Areas. The repairs, reconstruction or restoration of improvements not originally provided by Landlord or at Landlord's expense shall be the obligation of Tenant. In the event Tenant has elected to upgrade certain improvements from the Building Standard, Landlord shall, upon the need for replacement due to an insured loss, provide only the Building Standard, unless Tenant again elects to upgrade such improvements and pay any incremental costs related thereto, except to the extent that excess insurance proceeds, if received, are adequate to provide such upgrades, in addition to providing for basic repairs, reconstruction and restoration of the Premises, the Building and the Project.

24.8. Notwithstanding anything to the contrary contained in this Article, Landlord shall not have any obligation whatsoever to repair, reconstruct or restore the Premises if the damage resulting from any casualty covered under this Article occurs during the last twenty-four (24)

months of the Term or any extension thereof, or to the extent that insurance proceeds are not available therefor.

24.9. Landlord's obligation, should it elect or be obligated to repair, reconstruct or restore, shall be limited to the Affected Areas, and shall be conditioned upon Landlord receiving any permits or authorizations required by Applicable Laws. Tenant shall, at its expense, replace or fully repair all of Tenant's personal property and any Alterations installed by Tenant existing at the time of such damage or destruction. If Affected Areas are to be repaired, reconstructed or restored in accordance with the foregoing, Landlord shall make available to Tenant any portion of insurance proceeds it receives that are allocable to the Alterations constructed by Tenant pursuant to this Lease; provided Tenant is not then in default under this Lease, and subject to the requirements of any Lender of Landlord.

24.10. This Article sets forth the terms and conditions upon which this Lease may terminate in the event of any damage or destruction. Accordingly, the parties hereby waive the provisions of California Civil Code Sections 1932(2) and 1933(4) (and any successor statutes) permitting the parties to terminate this Lease as a result of any damage or destruction.

25. Eminent Domain.

25.1. In the event (a) the whole of all Affected Areas or (b) such part thereof as shall substantially interfere with Tenant's use and occupancy of the Premises for the Permitted Use shall be taken for any public or quasi-public purpose by any lawful power or authority by exercise of the right of appropriation, condemnation or eminent domain, or sold to prevent such taking, Tenant or Landlord may terminate this Lease effective as of the date possession is required to be surrendered to such authority, except with regard to (y) items occurring prior to the taking and (z) provisions of this Lease that, by their express terms, survive the expiration or earlier termination hereof.

25.2. In the event of a partial taking of (a) the Building or the Project or (b) drives, walkways or parking areas serving the Building or the Project for any public or quasi-public purpose by any lawful power or authority by exercise of right of appropriation, condemnation, or eminent domain, or sold to prevent such taking, then, without regard to whether any portion of the Premises occupied by Tenant was so taken, Landlord may elect to terminate this Lease (except with regard to (a) items occurring prior to the taking and (b) provisions of this Lease that, by their express terms, survive the expiration or earlier termination hereof) as of such taking if such taking is, in Landlord's sole opinion, of a material nature such as to make it uneconomical to continue use of the unappropriated portion for purposes of renting office or laboratory space.

25.3. To the extent permitted under all applicable Loan Documents or otherwise consented to by any and all Lenders whose consent is required thereunder, Tenant shall be entitled to any award that is specifically awarded as compensation for (a) the taking of Tenant's personal property that was installed at Tenant's expense and (b) the costs of Tenant moving to a

new location. Except as set forth in the previous sentence, any award for such taking shall be the property of Landlord.

25.4. If, upon any taking of the nature described in this Article, this Lease continues in effect, then Landlord shall promptly proceed to restore the Affected Areas to substantially their same condition prior to such partial taking. To the extent such restoration is infeasible, as determined by Landlord in its sole and absolute discretion, the Rent shall be decreased proportionately to reflect the loss of any portion of the Premises no longer available to Tenant. Notwithstanding anything to the contrary contained in this Article, Landlord shall not be required to restore the Affected Areas (or any other portion of the Project) to the extent that Landlord is prohibited from doing so by any applicable Loan Document or any Lender whose consent is required thereunder withholds its consent.

25.5. This Article sets forth the terms and conditions upon which this Lease may terminate in the event of any damage or destruction. Accordingly, the parties hereby waive the provisions of California Code of Civil Procedure Section 1265.130 (and any successor statutes) permitting the parties to terminate this Lease as a result of any damage or destruction.

26. Surrender.

26.1. At least thirty (30) days prior to Tenant's surrender of possession of any part of the Premises, Tenant shall provide Landlord with a facility decommissioning and Hazardous Materials closure plan for the Premises ("Exit Survey") prepared by an independent third party state-certified professional with appropriate expertise, which Exit Survey must be reasonably acceptable to Landlord. The Exit Survey shall comply with the American National Standards Institute's Laboratory Decommissioning guidelines (ANSI/AIHA Z9.11-2008) or any successor standards published by ANSI or any successor organization (or, if ANSI and its successors no longer exist, a similar entity publishing similar standards). In addition, at least ten (10) days prior to Tenant's surrender of possession of any part of the Premises, Tenant shall (a) provide Landlord with written evidence of all appropriate governmental releases obtained by Tenant in accordance with Applicable Laws, including laws pertaining to the surrender of the Premises, (b) place Laboratory Equipment Decontamination Forms on all decommissioned equipment to assure safe occupancy by future users and (c) conduct a site inspection with Landlord. In addition, Tenant agrees to remain responsible after the surrender of the Premises for the remediation of any recognized environmental conditions set forth in the Exit Survey and comply with any recommendations set forth in the Exit Survey. Tenant's obligations under this Section shall survive the expiration or earlier termination of the Lease.

26.2. No surrender of possession of any part of the Premises shall release Tenant from any of its obligations hereunder, unless such surrender is accepted in writing by Landlord.

26.3. The voluntary or other surrender of this Lease by Tenant shall not effect a merger with Landlord's fee title or leasehold interest in the Premises, the Building, the Property or the Project, unless Landlord consents in writing, and shall, at Landlord's option, operate as an assignment to Landlord of any or all subleases.

26.4. The voluntary or other surrender of any ground or other underlying lease that now exists or may hereafter be executed affecting the Building or the Project, or a mutual cancellation thereof or of Landlord's interest therein by Landlord and its lessor shall not effect a merger with Landlord's fee title or leasehold interest in the Premises, the Building or the Property and shall, at the option of the successor to Landlord's interest in the Building or the Project, as applicable, operate as an assignment of this Lease.

27. Holding Over.

27.1. If, with Landlord's prior written consent, Tenant holds possession of all or any part of the Premises after the Term, Tenant shall become a tenant from month to month after the expiration or earlier termination of the Term, and in such case Tenant shall continue to pay (a) Base Rent in accordance with Article 7, as adjusted in accordance with Article 8, and (b) any amounts for which Tenant would otherwise be liable under this Lease if the Lease were still in effect, including payments for Tenant's Adjusted Share of Operating Expenses. Any such month-to-month tenancy shall be subject to every other term, covenant and agreement contained herein.

27.2. Notwithstanding the foregoing, if Tenant remains in possession of the Premises after the expiration or earlier termination of the Term without Landlord's prior written consent, (a) Tenant shall become a tenant at sufferance subject to the terms and conditions of this Lease, except that the monthly rent shall be equal to one hundred fifty percent (150%) of the Rent in effect during the last thirty (30) days of the Term, and (b) Tenant shall be liable to Landlord for any and all damages suffered by Landlord as a result of such holdover, including any lost rent or consequential, special and indirect damages (in each case, regardless of whether such damages are foreseeable).

27.3. Acceptance by Landlord of Rent after the expiration or earlier termination of the Term shall not result in an extension, renewal or reinstatement of this Lease.

27.4. The foregoing provisions of this Article are in addition to and do not affect Landlord's right of reentry or any other rights of Landlord hereunder or as otherwise provided by Applicable Laws.

27.5. The provisions of this Article shall survive the expiration or earlier termination of this Lease.

28. Indemnification and Exculpation.

28.1. Tenant agrees to Indemnify the Landlord Indemnitees from and against any and all Claims of any kind or nature, real or alleged, arising from (a) injury to or death of any person or damage to any property occurring within or about the Premises, the Building, the Property or the Project, arising directly or indirectly out of (i) the presence at or use or occupancy of the Premises or Project by a Tenant Party or (ii) an act or omission on the part of any Tenant Party, (b) a breach or default by Tenant in the performance of any of its obligations hereunder (including any Claim asserted by a Lender against any Landlord Indemnitees under any Loan

Document as a direct result of such breach or default by Tenant) or (c) injury to or death of persons or damage to or loss of any property, real or alleged, arising from the serving of alcoholic beverages at the Premises or Project, including liability under any dram shop law, host liquor law or similar Applicable Law, except to the extent directly arising from Landlord's negligence or willful misconduct. Tenant's obligations under this Section shall not be affected, reduced or limited by any limitation on the amount or type of damages, compensation or benefits payable by or for Tenant under workers' compensation acts, disability benefit acts, employee benefit acts or similar legislation. Tenant's obligations under this Section shall survive the expiration or earlier termination of this Lease. Subject to Sections 23.6, 28.2 and 31.12 and any subrogation provisions contained in the Work Letter, Landlord agrees to Indemnify the Tenant Parties from and against any and all Claims arising from injury to or death of any person or damage to or loss of any physical property occurring within or about the Premises, the Building, the Property or the Project to the extent directly arising from Landlord's gross negligence or willful misconduct.

28.2. Notwithstanding anything in this Lease to the contrary, Landlord shall not be liable to Tenant for and Tenant assumes all risk of (a) damage or losses arising from fire, electrical malfunction, gas explosion or water damage of any type (including broken water lines, malfunctioning fire sprinkler systems, roof leaks or stoppages of lines), unless any such loss is due to Landlord's willful disregard of written notice by Tenant of need for a repair that Landlord is responsible to make for an unreasonable period of time, and (b) damage to personal property or scientific research, including loss of records kept by Tenant within the Premises (in each case, regardless of whether such damages are foreseeable). Tenant further waives any claim for injury to Tenant's business or loss of income relating to any such damage or destruction of personal property as described in this Section. Notwithstanding anything in the foregoing or this Lease to the contrary, except (x) as otherwise provided herein (including Section 27.2), (y) as may be provided by Applicable Laws or (z) in the event of Tenant's breach of Article 21 or Section 26.1, in no event shall Landlord or Tenant be liable to the other for any consequential, special or indirect damages arising from this Lease, including lost profits (provided that this Subsection 28.2(z) shall not limit Tenant's liability for Base Rent or Additional Rent pursuant to this Lease).

28.3. Landlord shall not be liable for any damages arising from any act, omission or neglect of any other tenant in the Building or the Project, or of any other third party.

28.4. Tenant acknowledges that security devices and services, if any, while intended to deter crime, may not in given instances prevent theft or other criminal acts. Landlord shall not be liable for injuries or losses arising from criminal acts of third parties, and Tenant assumes the risk that any security device or service may malfunction or otherwise be circumvented by a criminal. If Tenant desires protection against such criminal acts, then Tenant shall, at Tenant's sole cost and expense, obtain appropriate insurance coverage. Tenant's security programs and equipment for the Premises shall be coordinated with Landlord and subject to Landlord's reasonable approval.

28.5. The provisions of this Article shall survive the expiration or earlier termination of this Lease.

29. Assignment or Subletting.

29.1. Except as hereinafter expressly permitted, none of the following (each, a "Transfer"), either voluntarily or by operation of Applicable Laws, shall be directly or indirectly performed without Landlord's prior written consent, which consent shall not be unreasonably withheld, conditioned or delayed: (a) Tenant selling, hypothecating, assigning, pledging, encumbering or otherwise transferring this Lease or subletting the Premises or (b) a controlling interest in Tenant being sold, assigned or otherwise transferred (other than as a result of shares in Tenant being sold on a public stock exchange). For purposes of the preceding sentence, "control" means (g) owning (directly or indirectly) more than fifty percent (50%) of the stock or other equity interests of another person or (h) possessing, directly or indirectly, the power to direct or cause the direction of the management and policies of such person. Tenant shall have the right, without Landlord's prior written consent, to (m) Transfer Tenant's interest in this Lease or the Premises or any part thereof to any person that (i) acquires all or substantially all of the assets of Tenant (either indirectly through a sale of all or substantially all of Tenant's stock or equity interests or directly), (ii) is a successor to Tenant by merger, consolidation or reorganization or as a result of an initial public offering of Tenant's stock on a nationally recognized stock exchange, or (iii) as of the date of determination and at all times thereafter directly, or indirectly through one or more intermediaries, controls, is controlled by or is under common control with Tenant (the transferee or resulting Tenant described in (i), (ii) or (iii), a "Tenant's Affiliate") and (n) provided that, at all times prior to and after such transfer, Tenant remains the tenant under this Lease and Tenant retains the power to direct or cause the direction of the management and policies of Tenant and Tenant retains fifty-one percent (51%) or more of the voting power of all the stock or other equity interests in Tenant, transfer (directly or indirectly) more than fifty percent (50%) of the stock or equity interests of Tenant as part of a bona fide private equity placement financing (an "Equity Financing Transfer"); provided that, in each case, Tenant shall notify Landlord in writing at least thirty (30) days prior to the effectiveness of such Transfer (any such Transfer described in (m) or (n) in this Section above, an "Exempt Transfer") and otherwise comply with the requirements of this Lease regarding such Transfer; and provided, further, that the person that will be the tenant under this Lease after the Exempt Transfer has a net worth (as of both the day immediately prior to and the day immediately after the Exempt Transfer) that is equal to or greater than the net worth (as of the date of the Exempt Transfer) of the transferring Tenant. For purposes of the immediately

preceding sentence, "control" requires both (y) owning (directly or indirectly) more than fifty percent (50%) of the stock or other equity interests of another person and (z) possessing, directly or indirectly, the power to direct or cause the direction of the management and policies of such person. In no event shall Tenant perform a Transfer to or with an entity that is a tenant at the Project or that is in discussions or negotiations with Landlord or an affiliate of Landlord to lease premises at the Project; provided that, Landlord or such affiliate has sufficient space for such entity at the Project. Upon Tenant's written request, Landlord agrees to execute and deliver a commercially reasonable form of confidentiality agreement with respect to any information disclosed to Landlord in connection with a proposed Transfer or Exempt Transfer. Notwithstanding the foregoing, if Tenant is precluded by Applicable Law or by contract from giving Landlord prior written notice of an Exempt Transfer, then Tenant will provide Landlord with written notice of the Exempt Transfer as soon as Tenant may do so without violating Applicable Law or the terms of the applicable contract, and if Tenant does not know all of the material terms of the Exempt Transfer at least thirty (30) days prior to its effectiveness, then Tenant will provide Landlord with written notice of the Exempt Transfer no later than five (5) days after Tenant knows all of the material terms of the Exempt Transfer.

29.2. In the event Tenant desires to effect a Transfer, then, at least thirty (30) but not more than ninety (90) days prior to the date when Tenant desires the Transfer to be effective (the "Transfer Date"), Tenant shall provide written notice to Landlord (the "Transfer Notice") containing information (including references) concerning the character of the proposed transferee, assignee or sublessee; the Transfer Date; the most recent unconsolidated financial statements of Tenant and of the proposed transferee, assignee or sublessee satisfying the requirements of Section 40.2 ("Required Financials"); any ownership or commercial relationship between Tenant and the proposed transferee, assignee or sublessee; copies of Hazardous Materials Documents for the proposed transferee, assignee or sublessee; and the consideration and all other material terms and conditions of the proposed Transfer, all in such detail as Landlord shall reasonably require.

29.3. Landlord, in determining whether consent should be given to a proposed Transfer, may give consideration to (a) the financial strength of such transferee, assignee or sublessee (taking into account that Tenant shall remain liable for Tenant's performance), (b) any change in use that such transferee, assignee or sublessee proposes to make in the use of the Premises and (c) Landlord's desire to exercise its rights under Section 29.7 to cancel this Lease. In no event shall Landlord be deemed to be unreasonable for declining to consent to a Transfer if any applicable Loan Document prohibits such assignment or any Lender whose consent is required thereunder withholds its consent, or if the Transfer is to a transferee, assignee or sublessee of poor reputation, lacking financial qualifications or seeking a change in the Permitted Use, or jeopardizing directly or indirectly the status of Landlord or any of Landlord's affiliates as a Real Estate Investment Trust under the Internal Revenue Code of 1986 (as the same may be amended from time to time, the "Revenue Code"). Notwithstanding anything contained in this Lease to the contrary, (w) no Transfer shall be consummated on any basis such that the rental or other amounts to be paid by the occupant, assignee, manager or other transferee thereunder would be based, in whole or in part, on the income or profits derived by the business activities of such

occupant, assignee, manager or other transferee; (x) at any time Landlord or any of Landlord's affiliates is a real estate investment trust, Tenant shall not furnish or render any services to an occupant, assignee, manager or other transferee with respect to whom transfer consideration is required to be paid, or manage or operate the Premises or any capital additions so transferred, with respect to which transfer consideration is being paid, to the extent that any of the foregoing would cause Landlord to be in violation of any Applicable Laws or other requirements imposed upon real estate investment trusts or otherwise jeopardizes, directly or indirectly, the status of Landlord or any of Landlord's affiliates as a real estate investment trust; (y) Tenant shall not consummate a Transfer with any person in which Landlord owns an interest, directly or indirectly (by applying constructive ownership rules set forth in Section 856(d)(5) of the Revenue Code); and (z) Tenant shall not consummate a Transfer with any person or in any manner that could cause any portion of the amounts received by Landlord pursuant to this Lease or any sublease, license or other arrangement for the right to use, occupy or possess any portion of the Premises to fail to qualify as "rents from real property" within the meaning of Section 856(d) of the Revenue Code, or any similar or successor provision thereto or which could cause any other income of Landlord to fail to qualify as income described in Section 856(c)(2) of the Revenue Code. Notwithstanding anything in this Lease to the contrary, if (a) Tenant or any proposed transferee, assignee or sublessee of Tenant has been required by any prior landlord, Lender or Governmental Authority to take material remedial action in connection with Hazardous Materials contaminating a property if the contamination resulted from such party's action or omission or use of the property in question or (b) Tenant or any proposed transferee, assignee or sublessee is subject to a material enforcement order issued by any Governmental Authority in connection with the use, disposal or storage of Hazardous Materials, then Landlord shall have the right to terminate this Lease in Landlord's sole and absolute discretion (with respect to any such matter involving Tenant), and it shall not be unreasonable for Landlord to withhold its consent to any proposed transfer, assignment or subletting (with respect to any such matter involving a proposed transferee, assignee or sublessee).

29.4. The following are conditions precedent to a Transfer or to Landlord considering a request by Tenant to a Transfer:

(a) Tenant shall remain fully liable under this Lease. Tenant agrees that it shall not be (and shall not be deemed to be) a guarantor or surety of this Lease, however, and waives its right to claim that is it is a guarantor or surety or to raise in any legal proceeding any guarantor or surety defenses permitted by this Lease or by Applicable Laws;

(b) If Tenant or, except with respect to an Exempt Transfer that is an Equity Financing Transfer, a proposed transferee, assignee or sublessee does not or cannot deliver the Required Financials, then Landlord may elect to have either Tenant's ultimate parent company or the proposed transferee's, assignee's or sublessee's ultimate parent company provide a guaranty of the applicable entity's obligations under this Lease, in a form acceptable to Landlord, which guaranty shall be executed and delivered to Landlord by the applicable guarantor prior to the Transfer Date;

(c) In the case of an Exempt Transfer, Tenant shall provide Landlord with evidence reasonably satisfactory to Landlord that the Transfer qualifies as an Exempt Transfer;

(d) Tenant shall provide Landlord with evidence reasonably satisfactory to Landlord that the value of Landlord's interest under this Lease shall not be diminished or reduced by the proposed Transfer. Such evidence shall include evidence respecting the relevant business experience and financial responsibility and status of the proposed transferee, assignee or sublessee;

(e) Tenant shall reimburse Landlord for Landlord's actual costs and expenses, including reasonable attorneys' fees, charges and disbursements incurred in connection with the review, processing and documentation of such request, not to exceed Five Thousand Dollars ($5,000) in any one instance;

(f) Except with respect to an Exempt Transfer, if Tenant's transfer of rights or sharing of the Premises provides for the receipt by, on behalf of or on account of Tenant of any consideration of any kind whatsoever (including a premium rental for a sublease or lump sum payment for an assignment, but excluding Tenant's reasonable costs in marketing and subleasing the Premises) in excess of the rental and other charges due to Landlord under this Lease, Tenant shall pay fifty percent (50%) of all of such excess to Landlord, after making deductions for any reasonable marketing expenses, tenant improvement funds expended by Tenant, alterations, cash concessions, brokerage commissions, attorneys' fees and free rent actually paid by Tenant. If such consideration consists of cash paid to Tenant, payment to Landlord shall be made upon receipt by Tenant of such cash payment;

(g) With respect to a Transfer (including an Exempt Transfer) that constitutes a sublease of all or a portion of the Premises or any similar arrangement, the proposed sublessee or transferee shall agree that, in the event Landlord gives such proposed sublessee or transferee notice that Tenant is in default under this Lease, such proposed sublessee or transferee shall thereafter make all rental and other payments otherwise due Tenant directly to Landlord, which payments shall be received by Landlord, without any liability being incurred by Landlord, and applied against the amounts due from Tenant under this Lease, and any such proposed sublessee or transferee shall agree to attorn to Landlord or its successors and assigns should this Lease be terminated for any reason; provided, however, that in no event shall Landlord or its Lenders, successors or assigns be obligated to accept such attornment;

(h) Landlord's consent to any such Transfer shall be effected on Landlord's commercially reasonable forms;

(i) Tenant shall not then be in Default hereunder in any respect;

(j) Such proposed transferee, assignee or sublessee's use of the Premises shall be the same as the Permitted Use;

(k) Landlord shall not be bound by any provision of any agreement pertaining to the Transfer, except for Landlord's written consent to the same;

(l) Tenant shall pay all transfer and other taxes (including interest and penalties) assessed or payable for any Transfer;

(m) Landlord's consent (or waiver of its rights) for any Transfer shall not waive Landlord's right to consent or refuse consent to any later Transfer;

(n) Tenant shall deliver to Landlord one executed copy of any and all written instruments evidencing or relating to the Transfer; and

(o) Tenant shall deliver to Landlord a list of Hazardous Materials (as defined below), certified by the proposed transferee, assignee or sublessee to be true and correct, that the proposed transferee, assignee or sublessee intends to use or store in the Premises. Additionally, Tenant shall deliver to Landlord, on or before the date any proposed transferee, assignee or sublessee takes occupancy of the Premises, all of the items relating to Hazardous Materials of such proposed transferee, assignee or sublessee as described in Section 21.2.

Notwithstanding the foregoing, the requirements set forth in Sections 29.4(b) and (d) above shall not apply to an Exempt Transfer to a Tenant's Affiliate (w) as described in Section 29.1(m)(i) or (x) that is a successor to Tenant by merger as described in Section 29.1(m)(ii), provided that, in all cases, the resulting Tenant under the Lease following any such Exempt Transfer described in clause (w) or (x) of this sentence (y) is a public company that trades on a United States stock exchange and (z) has a net worth (as of both the day immediately prior to and the day immediately after the Exempt Transfer) that is equal to or greater than Five Billion Dollars ($5,000,000,000); provided, further, that if such public company described in clause (y) above is not domiciled in (and formed in and under the Applicable Laws of) the United States of America, then Tenant must deliver to Landlord prior to or simultaneously with the Exempt Transfer a legal opinion confirming (i) the Lease provisions will be binding upon and enforceable against such entity as of consummation of the Exempt Transfer and (ii) any judgment obtained by Landlord in accordance with the terms of the Lease and Applicable Laws shall be enforceable by Landlord against such entity in the country where such entity is domiciled.

29.5. Any Transfer that is not in compliance with the provisions of this Article or with respect to which Tenant does not fulfill its obligations pursuant to this Article shall be void and shall, at the option of Landlord (in Landlord's sole and absolute discretion), be deemed a Default by Tenant under this Lease.

29.6. Notwithstanding any Transfer, Tenant shall remain fully and primarily liable for the payment of all Rent and other sums due or to become due hereunder, and for the full performance of all other terms, conditions and covenants to be kept and performed by Tenant. The acceptance of Rent or any other sum due hereunder, or the acceptance of performance of any

other term, covenant or condition thereof, from any person or entity other than Tenant shall not be deemed a waiver of any of the provisions of this Lease or a consent to any Transfer.

29.7. If Tenant delivers to Landlord a Transfer Notice indicating a desire to transfer this Lease to a proposed transferee, assignee or sublessee, other than pursuant to an Exempt Transfer, then Landlord shall have the option, exercisable by giving notice to Tenant at any time within thirty (30) days after Landlord's receipt of such Transfer Notice, to terminate this Lease as of the date specified in the Transfer Notice as the Transfer Date, except for those provisions that, by their express terms, survive the expiration or earlier termination hereof. If Landlord exercises such option, then Tenant shall have the right to withdraw such Transfer Notice by delivering to Landlord written notice of such election within five (5) business days after Landlord's delivery of notice electing to exercise Landlord's option to terminate this Lease. In the event Tenant withdraws the Transfer Notice as provided in this Section, this Lease shall continue in full force and effect. No failure of Landlord to exercise its option to terminate this Lease shall be deemed to be Landlord's consent to a proposed Transfer.

29.8. If Tenant sublets the Premises or any portion thereof, Tenant hereby immediately and irrevocably assigns to Landlord, as security for Tenant's obligations under this Lease, all rent from any such subletting, and appoints Landlord as assignee and attorney-in-fact for Tenant, and Landlord (or a receiver for Tenant appointed on Landlord's application) may collect such rent and apply it toward Tenant's obligations under this Lease; provided that, until the occurrence of a Default (as defined below) by Tenant, Tenant shall have the right to collect such rent.

29.9. In the event that Tenant enters into a sublease for the entire Premises in accordance with this Article that expires within two (2) days of the Term Expiration Date, the term expiration date of such sublease shall, notwithstanding anything in this Lease, the sublease or any consent to the sublease to the contrary, be deemed to be the date that is two (2) days prior to the Term Expiration Date.

30. Subordination and Attornment.

30.1. This Lease shall be subject and subordinate to the lien of any mortgage, deed of trust, or lease in which Landlord is tenant now or hereafter in force against the Building or the Project and to all advances made or hereafter to be made upon the security thereof without the necessity of the execution and delivery of any further instruments on the part of Tenant to effectuate such subordination.

30.2. Notwithstanding the foregoing, Tenant shall execute and deliver upon demand such further commercially reasonable instrument or instruments evidencing such subordination of this Lease to the lien of any such mortgage or mortgages or deeds of trust or lease in which Landlord is tenant as may be reasonably required by Landlord, it being expressly understood that any Lender's required form of subordination shall be deemed to be a commercially reasonable instrument for purposes of this Section. If any Lender so elects, however, this Lease shall be deemed prior in lien to any such lease, mortgage, or deed of trust upon or including the Premises

regardless of date and Tenant shall execute a statement in writing to such effect at Landlord's request. If Tenant fails to execute any document required from Tenant under this Section within ten (10) days after written request therefor, Tenant hereby constitutes and appoints Landlord or its special attorney-in-fact to execute and deliver any such document or documents in the name of Tenant. Such power is coupled with an interest and is irrevocable. For the avoidance of doubt, "Lenders" shall also include historic tax credit investors and new market tax credit investors.

30.3. In the event any proceedings are brought for foreclosure, or in the event of the exercise of the power of sale under any mortgage or deed of trust made by Landlord covering the Premises, Tenant shall at the election of the purchaser at such foreclosure or sale attorn to the purchaser upon any such foreclosure or sale and recognize such purchaser as Landlord under this Lease.

30.4. During the Term, upon Tenant's written request, Landlord shall request a subordination and non-disturbance agreement from any future Lender that holds a deed of trust lien encumbering the portion of the Project on which the Premises is situated (for purposes of clarity, this obligation does not apply with respect to any deed of trust lien that encumbers the portion of the Project on which the Premises is situated and exists as of the Execution Date); provided, however, that (a) Landlord shall have no obligation to obtain such subordination and non-disturbance agreement (and Tenant shall have no right or remedy in the event that such Lender refuses to provide such subordination and non-disturbance agreement), and (b) Tenant shall (i) pay all fees and expenses of any kind (including, without limitation, attorneys' fees) imposed or required by such Lender in connection with such subordination and non-disturbance agreement, and (ii) reimburse Landlord for Landlord's actual costs and expenses, including reasonable attorneys' fees, charges and disbursements incurred in connection with the review, processing and documentation of such subordination and non-disturbance agreement.

31. Defaults and Remedies.

31.1. Late payment by Tenant to Landlord of Rent and other sums due shall cause Landlord to incur costs not contemplated by this Lease, the exact amount of which shall be extremely difficult and impracticable to ascertain. Such costs include processing and accounting charges and late charges that may be imposed on Landlord by the terms of any mortgage or trust deed covering the Premises. Therefore, if any installment of Rent due from Tenant is not received by Landlord within five (5) days after the date such payment is due, Tenant shall pay to Landlord (a) an additional sum of five percent (5%) of the overdue Rent as a late charge plus (b) interest at an annual rate (the "Default Rate") equal to the lesser of (a) ten percent (10%) and (b) the highest rate permitted by Applicable Laws. The parties agree that this late charge represents a fair and reasonable estimate of the costs that Landlord shall incur by reason of late payment by Tenant and shall be payable as Additional Rent to Landlord due with the next installment of Rent or within five (5) business days after Landlord's demand, whichever is earlier, provided Tenant has at least five (5) business days in which to pay such late charge after such charge is incurred. Landlord's acceptance of any Additional Rent (including a late charge or any other amount

hereunder) shall not be deemed an extension of the date that Rent is due or prevent Landlord from pursuing any other rights or remedies under this Lease, at law or in equity.

31.2. No payment by Tenant or receipt by Landlord of a lesser amount than the Rent payment herein stipulated shall be deemed to be other than on account of the Rent, nor shall any endorsement or statement on any check or any letter accompanying any check or payment as Rent be deemed an accord and satisfaction, and Landlord may accept such check or payment without prejudice to Landlord's right to recover the balance of such Rent or pursue any other remedy provided in this Lease or in equity or at law. If a dispute shall arise as to any amount or sum of money to be paid by Tenant to Landlord hereunder, Tenant shall have the right to make payment "under protest," such payment shall not be regarded as a voluntary payment, and there shall survive the right on the part of Tenant to institute suit for recovery of the payment paid under protest.

31.3. If Tenant fails to pay any sum of money required to be paid by it hereunder or perform any other act on its part to be performed hereunder, in each case within the applicable cure period (if any) described in Section 31.4, then Landlord may (but shall not be obligated to), without waiving or releasing Tenant from any obligations of Tenant, make such payment or perform such act; provided that such failure by Tenant unreasonably interfered with the use of the Building or the Project by any other tenant or with the efficient operation of the Building or the Project, or resulted or could have resulted in a violation of Applicable Laws or the cancellation of an insurance policy maintained by Landlord. Notwithstanding the foregoing, in the event of an emergency, Landlord shall have the right to enter the Premises and act in accordance with its rights as provided elsewhere in this Lease. In addition to the late charge described in Section 31.1, Tenant shall pay to Landlord as Additional Rent all sums so paid or incurred by Landlord, together with interest at the Default Rate, computed from the date such sums were paid or incurred.

31.4. The occurrence of any one or more of the following events shall constitute a "Default" hereunder by Tenant:

(a) Tenant (i) abandons the Premises within the meaning of Section 1951.3 of the California Civil Code; or (ii)(A) Landlord receives notice of Tenant's vacation of or Tenant's intention to vacate the Premises prior to the scheduled expiration or earlier termination of this Lease, other than in accordance with a right expressly granted to Tenant under this Lease, and such vacation (or intention to vacate) is related to financial hardship or Tenant's inability to pay its debts as they become due, a dissolution of Tenant, or the liquidation or winding up of Tenant's business operations; or (B) Tenant vacates the Premises prior to the scheduled expiration or earlier termination of this Lease, other than in accordance with a right expressly granted to Tenant under this Lease, within the one-hundred twenty (120) day period following

the filing of any involuntary petition against Tenant or the attachment of Tenant's interest in this Lease (notwithstanding anything to the contrary in Sections 31.4(g) and 31.4(k));

(b) Tenant fails to make any payment of Rent, as and when due, or to satisfy its obligations under Article 19, where such failure shall continue for a period of three (3) business days after written notice thereof from Landlord to Tenant;

(c) Tenant fails to observe or perform any obligation or covenant contained herein (other than described in Sections 31.4(a) and 31.4(b)) to be performed by Tenant, where such failure continues for a period of fifteen (15) days after written notice thereof from Landlord to Tenant; provided that, if the nature of Tenant's default is such that it reasonably requires more than fifteen (15) days to cure, Tenant shall not be deemed to be in Default if Tenant commences such cure within such fifteen (15) day period and thereafter diligently prosecutes the same to completion and provided, further, that such cure is completed no later than forty-five (45) days after Tenant's receipt of written notice from Landlord;

(d) Tenant makes an assignment for the benefit of creditors;

(e) A receiver, trustee or custodian is appointed to or does take title, possession or control of all or substantially all of Tenant's assets;

(f) Tenant files a voluntary petition under the United States Bankruptcy Code or any successor statute (as the same may be amended from time to time, the "Bankruptcy Code") or an order for relief is entered against Tenant pursuant to a voluntary or involuntary proceeding commenced under any chapter of the Bankruptcy Code;

(g) Any involuntary petition is filed against Tenant under any chapter of the Bankruptcy Code and is not dismissed within one hundred twenty (120) days;

(h) A default exists under that certain Option Agreement dated as of the Execution Date, by and between Landlord and Tenant (the "Option Agreement"), after the expiration of any applicable notice and cure periods;

(i) A default exists under the 4575 Lease (as defined below), after the expiration of any applicable notice and cure periods, as applicable;

(j) Tenant fails to deliver an estoppel certificate within three (3) business days following a second request in accordance with Article 20;

(k) Tenant's interest in this Lease is attached, executed upon or otherwise judicially seized and such action is not released within one hundred twenty (120) days of the action; or

(l) Tenant effects a Transfer that is not in compliance with the provisions of Article 29.

Notices given under this Section shall specify the alleged default and shall demand that Tenant perform the provisions of this Lease or pay the Rent that is in arrears, as the case may be, within the applicable period of time, or quit the Premises. No such notice shall be deemed a forfeiture or a termination of this Lease unless Landlord elects otherwise in such notice.

31.5. In the event of a Default by Tenant, and at any time thereafter, with or without notice or demand and without limiting Landlord in the exercise of any right or remedy that Landlord may have, Landlord has the right to do any or all of the following:

(a) Halt any Tenant Improvements and Alterations and order Tenant's contractors, subcontractors, consultants, designers and material suppliers to stop work;

(b) Terminate Tenant's right to possession of the Premises by written notice to Tenant or by any lawful means, in which case Tenant shall immediately surrender possession of the Premises to Landlord. In such event, Landlord shall have the immediate right to re-enter and remove all persons and property, and such property may be removed and stored in a public warehouse or elsewhere at the cost and for the account of Tenant, all without service of notice or resort to legal process and without being deemed guilty of trespass or becoming liable for any loss or damage that may be occasioned thereby; and

(c) Terminate this Lease, in which event Tenant shall immediately surrender possession of the Premises to Landlord. In such event, Landlord shall have the immediate right to re-enter and remove all persons and property, and such property may be removed and stored in a public warehouse or elsewhere at the cost and for the account of Tenant, all without service of notice or resort to legal process and without being deemed guilty of trespass or becoming liable for any loss or damage that may be occasioned thereby. In the event that Landlord shall elect to so terminate this Lease, then Landlord shall be entitled to recover from Tenant all damages incurred by Landlord by reason of Tenant's default, including:

(i) The sum of:

A. The worth at the time of award of any unpaid Rent that had accrued at the time of such termination; plus

B. The worth at the time of award of the amount by which the unpaid Rent that would have accrued during the period commencing with termination of the Lease and ending at the time of award exceeds that portion of the loss of Landlord's rental income from the Premises that Tenant proves to Landlord's reasonable satisfaction could have been reasonably avoided; plus

C. The worth at the time of award of the amount by which the unpaid Rent for the balance of the Term after the time of award exceeds that portion of the loss

of Landlord's rental income from the Premises that Tenant proves to Landlord's reasonable satisfaction could have been reasonably avoided; plus

D. Any other amount necessary to compensate Landlord for all the detriment arising from Tenant's failure to perform its obligations under this Lease or that in the ordinary course of things would be likely to result therefrom, including the cost of restoring the Premises to the condition required under the terms of this Lease, including any rent payments not otherwise chargeable to Tenant (e.g., during any "free" rent period or rent holiday); plus

E. At Landlord's election, such other amounts in addition to or in lieu of the foregoing as may be permitted from time to time by Applicable Laws.

(ii) As used in Sections 31.5(c)(i)(A) and (B), "worth at the time of award" shall be computed by allowing interest at the Default Rate. As used in Section 31.5(c)(i)(C), the "worth at the time of the award" shall be computed by taking the present value of such amount, using the discount rate of the Federal Reserve Bank of San Francisco at the time of the award plus one (1) percentage point (the "Discount Rate").

31.6. In addition to any other remedies available to Landlord at law or in equity and under this Lease, Landlord shall have the remedy described in California Civil Code Section 1951.4 and may continue this Lease in effect after Tenant's Default or abandonment and recover Rent as it becomes due, provided Tenant has the right to sublet or assign, subject only to reasonable limitations. In addition, Landlord shall not be liable in any way whatsoever for its failure or refusal to relet the Premises. For purposes of this Section, the following acts by Landlord will not constitute the termination of Tenant's right to possession of the Premises:

(a) Acts of maintenance or preservation or efforts to relet the Premises, including alterations, remodeling, redecorating, repairs, replacements or painting as Landlord shall consider advisable for the purpose of reletting the Premises or any part thereof; or

(b) The appointment of a receiver upon the initiative of Landlord to protect Landlord's interest under this Lease or in the Premises.

Notwithstanding the foregoing, in the event of a Default by Tenant, Landlord may elect at any time to terminate this Lease and to recover damages to which Landlord is entitled.

31.7. If Landlord does not elect to terminate this Lease as provided in Section 31.5, then Landlord may, from time to time, recover all Rent as it becomes due under this Lease. At any time thereafter, Landlord may elect to terminate this Lease and to recover damages to which Landlord is entitled.

31.8. In the event Landlord elects to terminate this Lease and relet the Premises, Landlord may execute any new lease in its own name. Tenant hereunder shall have no right or

authority whatsoever to collect any Rent from such tenant. The proceeds of any such reletting shall be applied as follows:

(a) First, to the payment of any indebtedness other than Rent due hereunder from Tenant to Landlord, including storage charges or brokerage commissions owing from Tenant to Landlord as the result of such reletting;

(b) Second, to the payment of the costs and expenses of reletting the Premises, including (i) alterations and repairs that Landlord deems reasonably necessary and advisable and (ii) reasonable attorneys' fees, charges and disbursements incurred by Landlord in connection with the retaking of the Premises and such reletting;

(c) Third, to the payment of Rent and other charges due and unpaid hereunder; and

(d) Fourth, to the payment of future Rent and other damages payable by Tenant under this Lease.

31.9. All of Landlord's rights, options and remedies hereunder shall be construed and held to be nonexclusive and cumulative. Landlord shall have the right to pursue any one or all of such remedies, or any other remedy or relief that may be provided by Applicable Laws, whether or not stated in this Lease. No waiver of any default of Tenant hereunder shall be implied from any acceptance by Landlord of any Rent or other payments due hereunder or any omission by Landlord to take any action on account of such default if such default persists or is repeated, and no express waiver shall affect defaults other than as specified in such waiver. Notwithstanding any provision of this Lease to the contrary, in no event shall Landlord be required to mitigate its damages with respect to any default by Tenant, except as required by Applicable Laws. Any such obligation imposed by Applicable Laws upon Landlord to relet the Premises after any termination of this Lease shall be subject to the reasonable requirements of Landlord to (a) lease to high quality tenants on such terms as Landlord may from time to time deem appropriate in its discretion and (b) develop the Project in a harmonious manner with a mix of uses, tenants, floor areas, terms of tenancies, etc., as determined by Landlord. Landlord shall not be obligated to relet the Premises to (y) any Tenant's Affiliate or (z) any party (i) unacceptable to a Lender, (ii) that requires Landlord to make improvements to or re-demise the Premises, (iii) that desires to change the Permitted Use, (iv) that desires to lease the Premises for more or less than the remaining Term or (v) to whom Landlord or an affiliate of Landlord may desire to lease other available space in the Project or at another property owned by Landlord or an affiliate of Landlord.

31.10. Landlord's termination of (a) this Lease or (b) Tenant's right to possession of the Premises shall not relieve Tenant of any liability to Landlord that has previously accrued or that shall arise based upon events that occurred prior to the later to occur of (y) the date of Lease termination and (z) the date Tenant surrenders possession of the Premises.

31.11. To the extent permitted by Applicable Laws, Tenant waives any and all rights of redemption granted by or under any present or future Applicable Laws if Tenant is evicted or dispossessed for any cause, or if Landlord obtains possession of the Premises due to Tenant's default hereunder or otherwise.

31.12. Landlord shall not be in default or liable for damages under this Lease unless Landlord fails to perform obligations required of Landlord within a reasonable time, but in no event shall such failure continue for more than thirty (30) days after written notice from Tenant specifying the nature of Landlord's failure; provided, however, that if the nature of Landlord's obligation is such that more than thirty (30) days are required for its performance, then Landlord shall not be in default if Landlord commences performance within such thirty (30) day period and thereafter diligently prosecutes the same to completion. In no event shall Tenant have the right to terminate or cancel this Lease or to withhold or abate rent or to set off any Claims against Rent as a result of any default or breach by Landlord of any of its covenants, obligations, representations, warranties or promises hereunder, except as may otherwise be expressly set forth in this Lease.

31.13. In the event of any default by Landlord, Tenant shall give notice by registered or certified mail to any (a) beneficiary of a deed of trust or (b) mortgagee under a mortgage covering the Premises, the Building or the Project and to any landlord of any lease of land upon or within which the Premises, the Building or the Project is located, and shall offer such beneficiary, mortgagee or landlord a reasonable opportunity to cure the default, including time to obtain possession of the Building or the Project by power of sale or a judicial action if such should prove necessary to effect a cure; provided that Landlord shall furnish to Tenant in writing, upon written request by Tenant, the names and addresses of all such persons who are to receive such notices.

32. Bankruptcy . In the event a debtor, trustee or debtor in possession under the Bankruptcy Code, or another person with similar rights, duties and powers under any other Applicable Laws, proposes to cure any default under this Lease or to assume or assign this Lease and is obliged to provide adequate assurance to Landlord that (a) a default shall be cured, (b) Landlord shall be compensated for its damages arising from any breach of this Lease and (c) future performance of Tenant's obligations under this Lease shall occur, then such adequate assurances shall include any or all of the following, as designated by Landlord in its sole and absolute discretion:

32.1. Those acts specified in the Bankruptcy Code or other Applicable Laws as included within the meaning of "adequate assurance," even if this Lease does not concern a shopping center or other facility described in such Applicable Laws;

32.2. A prompt cash payment to compensate Landlord for any monetary defaults or actual damages arising directly from a breach of this Lease;

32.3. A cash deposit in an amount at least equal to the then-current amount of the Security Deposit; or

32.4. The assumption or assignment of all of Tenant's interest and obligations under this Lease.

33. Brokers.

33.1. Tenant represents and warrants that it has had no dealings with any real estate broker or agent in connection with the negotiation of this Lease other than Cushman & Wakefield of San Diego, Inc. ("Tenant's Broker"), and that it knows of no other real estate broker or agent that is or might be entitled to a commission in connection with this Lease. Landlord shall compensate Broker in relation to this Lease pursuant to a separate agreement between Landlord and Broker. Landlord represents and warrants that it has had no dealings with any real estate broker or agent in connection with the negotiation of this Lease other than Jones Lang LaSalle Brokerage, Inc. ("Landlord's Broker"), and that it knows of no real estate broker or agent, other than Tenant's Broker and Landlord's Broker, that is or might be entitled to a commission in connection with this Lease.

33.2. Tenant represents and warrants that no broker or agent has made any representation or warranty relied upon by Tenant in Tenant's decision to enter into this Lease, other than as contained in this Lease.

33.3. Tenant acknowledges and agrees that the employment of brokers by Landlord is for the purpose of solicitation of offers of leases from prospective tenants and that no authority is granted to any broker to furnish any representation (written or oral) or warranty from Landlord unless expressly contained within this Lease. Landlord is executing this Lease in reliance upon Tenant's representations, warranties and agreements contained within Sections 33.1 and 33.2.

33.4. Tenant agrees to Indemnify the Landlord Indemnitees from any and all cost or liability for compensation claimed by any broker or agent, other than Broker, employed or engaged by Tenant or claiming to have been employed or engaged by Tenant. Landlord agrees to indemnify Tenant from any and all cost or liability for compensation claimed by any broker or agent employed or engaged by Landlord or claiming to have been employed or engaged by Landlord.

34. Definition of Landlord. With regard to obligations imposed upon Landlord pursuant to this Lease, the term "Landlord," as used in this Lease, shall refer only to Landlord or Landlord's then-current successor-in-interest. In the event of any transfer, assignment or conveyance of Landlord's interest in this Lease or in Landlord's fee title to or leasehold interest in the Property, as applicable, Landlord herein named (and in case of any subsequent transfers or conveyances,

the subsequent Landlord) shall be automatically freed and relieved, from and after the date of such transfer, assignment or conveyance, from all liability for the performance of any covenants or obligations contained in this Lease thereafter to be performed by Landlord and, without further agreement, the transferee, assignee or conveyee of Landlord's in this Lease or in Landlord's fee title to or leasehold interest in the Property, as applicable, shall be deemed to have assumed and agreed to observe and perform any and all covenants and obligations of Landlord hereunder during the tenure of its interest in the Lease or the Property. Landlord or any subsequent Landlord may transfer its interest in the Premises or this Lease without Tenant's consent. The 4575 Owner or any then-current successor-in-interest to the 4575 Property may transfer its interest (or any portion thereof) in the 4575 Property without Tenant's consent.

35. Limitation of Landlord's Liability.

35.1. If Landlord is in default under this Lease and, as a consequence, Tenant recovers a monetary judgment against Landlord, the judgment shall be satisfied only out of (a) the proceeds of sale received on execution of the judgment and levy against the right, title and interest of Landlord in the Building and the portion of the Project located on the Property, (b) rent or other income from such real property receivable by Landlord or (c) the consideration received by Landlord from the sale, financing, refinancing or other disposition of all or any part of Landlord's right, title or interest in the Building or the portion of the Project located on the Property.

35.2. Neither Landlord nor any of its affiliates, nor any of their respective partners, shareholders, directors, officers, employees, members or agents shall be personally liable for Landlord's obligations or any deficiency under this Lease, and service of process shall not be made against any shareholder, director, officer, employee or agent of Landlord or any of Landlord's affiliates. No partner, shareholder, director, officer, employee, member or agent of Landlord or any of its affiliates shall be sued or named as a party in any suit or action, and service of process shall not be made against any partner or member of Landlord except as may be necessary to secure jurisdiction of the partnership, joint venture or limited liability company, as applicable. No partner, shareholder, director, officer, employee, member or agent of Landlord or any of its affiliates shall be required to answer or otherwise plead to any service of process, and no judgment shall be taken or writ of execution levied against any partner, shareholder, director, officer, employee, member or agent of Landlord or any of its affiliates.

35.3. Each of the covenants and agreements of this Article shall be applicable to any covenant or agreement either expressly contained in this Lease or imposed by Applicable Laws and shall survive the expiration or earlier termination of this Lease.

36. Joint and Several Obligations. If more than one person or entity executes this Lease as Tenant, then:

36.1. Each of them is jointly and severally liable for the keeping, observing and performing of all of the terms, covenants, conditions, provisions and agreements of this Lease to be kept, observed or performed by Tenant, and such terms, covenants, conditions, provisions and

agreements shall be binding with the same force and effect upon each and all of the persons executing this Agreement as Tenant; and

36.2. The term "Tenant," as used in this Lease, shall mean and include each of them, jointly and severally. The act of, notice from, notice to, refund to, or signature of any one or more of them with respect to the tenancy under this Lease, including any renewal, extension, expiration, termination or modification of this Lease, shall be binding upon each and all of the persons executing this Lease as Tenant with the same force and effect as if each and all of them had so acted, so given or received such notice or refund, or so signed.

37. Representations. Tenant guarantees, warrants and represents that (a) Tenant is duly incorporated or otherwise established or formed and validly existing under the laws of its state of incorporation, establishment or formation, (b) Tenant has and is duly qualified to do business in the state in which the Property is located, (c) Tenant has full corporate, partnership, trust, association or other appropriate power and authority to enter into this Lease and to perform all Tenant's obligations hereunder, (d) each person (and all of the persons if more than one signs) signing this Lease on behalf of Tenant is duly and validly authorized to do so and (e) neither (i) the execution, delivery or performance of this Lease nor (ii) the consummation of the transactions contemplated hereby will violate or conflict with any provision of documents or instruments under which Tenant is constituted or to which Tenant is a party. In addition, Tenant guarantees, warrants and represents that none of (x) it, (y) its affiliates or partners nor (z) to the best of its knowledge, its members, shareholders or other equity owners or any of their respective employees, officers, directors, representatives or agents is a person or entity with whom U.S. persons or entities are restricted from doing business under regulations of the Office of Foreign Asset Control ("OFAC") of the Department of the Treasury (including those named on OFAC's Specially Designated and Blocked Persons List) or under any statute, executive order (including the September 24, 2001, Executive Order Blocking Property and Prohibiting Transactions with Persons Who Commit, Threaten to Commit, or Support Terrorism) or other similar governmental action.

38. Confidentiality. Tenant shall keep the terms and conditions of this Lease and any information provided to Tenant or its employees, agents or contractors pursuant to Article 9 confidential and shall not (a) disclose to any third party any terms or conditions of this Lease or any other Lease-related document (including subleases, assignments, work letters, construction contracts, letters of credit, subordination agreements, non-disturbance agreements, brokerage agreements or estoppels) or the contents of any documents, reports, surveys or evaluations related to the Project or any portion thereof or (b) provide to any third party an original or copy of this Lease (or any Lease-related document or other document referenced in Subsection 38(a)). Landlord shall not release to any third party any non-public financial information or non-public information about Tenant's ownership structure that Tenant gives Landlord. Notwithstanding the foregoing, confidential information under this Section may be released by Landlord or Tenant under the following circumstances: (x) if required by Applicable Laws or in any judicial proceeding; provided that the releasing party has given the other party reasonable notice of such requirement, if feasible, (y) to a party's attorneys, accountants, brokers, lenders, potential

lenders, investors, potential investors and other bona fide consultants or advisers (with respect to this Lease only); provided such third parties agree to be bound by this Section or (z) to bona fide prospective assignees or subtenants of this Lease; provided they agree in writing to be bound by this Section.

39. Notices. Except as otherwise stated in this Lease, any notice, consent, demand, invoice, statement or other communication required or permitted to be given hereunder shall be in writing and shall be given by (a) personal delivery or (b) overnight delivery with a reputable international overnight delivery service, such as FedEx. Any such notice, consent, demand, invoice, statement or other communication shall be deemed delivered (y) upon receipt, if given in accordance with Subsection 39(a); or (z) on the day that is the earlier of (i) actual delivery and (ii) attempted delivery, in either case, as evidenced by the records of the overnight delivery service, if given in accordance with Subsection 39(b). Except as otherwise stated in this Lease, any notice, consent, demand, invoice, statement or other communication required or permitted to be given pursuant to this Lease shall be addressed to Tenant or to Landlord at the addresses shown in Sections 2.9 and 2.10 or 2.11, respectively. Either party may, by notice to the other given pursuant to this Section, specify additional or different addresses for notice purposes.

40. Miscellaneous.

40.1. Landlord reserves the right to change the name of the Building or the Project in its sole discretion.

40.2. To induce Landlord to enter into this Lease, Tenant agrees that it shall furnish to Landlord, from time to time (but no more than two (2) times per calendar year (unless Tenant is in default of this Lease, in which event no such limitation shall apply); provided that, such two (2)-time limitation is in addition to the annual financial statements required without any request described in the immediately succeeding sentence), within ten (10) business days after receipt of Landlord's written request, the most recent year-end unconsolidated financial statements reflecting Tenant's current financial condition audited by a nationally recognized accounting firm. Tenant shall, within one hundred twenty (120) days after the end of Tenant's financial year, furnish Landlord with a certified copy of Tenant's year-end unconsolidated financial statements for the previous year audited by a nationally recognized accounting firm. Tenant represents and warrants that all financial statements, records and information furnished by Tenant to Landlord in connection with this Lease are true, correct and complete in all respects. If audited financials are not otherwise prepared, unaudited financials complying with generally accepted accounting principles and certified by the chief financial officer of Tenant as true, correct and complete in all respects shall suffice for purposes of this Section. If Tenant fails to deliver to Landlord any financial statement within the time period required under this Section, then Tenant shall be required to pay to Landlord an administrative fee equal to Five Hundred Dollars ($500) within five (5) business days after receiving written notice from Landlord advising Tenant of such failure (provided, however, that Landlord's acceptance of such fee shall not prevent Landlord from pursuing any other rights or remedies under this Lease, at law or in equity). The provisions of this Section shall not apply at any time while Tenant is a corporation whose shares are traded on any nationally recognized stock exchange.

40.3. Submission of this instrument for examination or signature by Tenant does not constitute a reservation of or option for a lease, and shall not be effective as a lease or otherwise until execution by and delivery to both Landlord and Tenant.

40.4. The terms of this Lease and the Option Agreement are intended by the parties as a final, complete and exclusive expression of their agreement with respect to the terms that are included herein, and may not be contradicted or supplemented by evidence of any other prior or contemporaneous agreement.

40.5. Landlord may, but shall not be obligated to, record a short form or memorandum hereof without Tenant's consent. Within ten (10) days after receipt of written request from Landlord, Tenant shall execute a termination of any short form or memorandum of lease recorded with respect hereto. Tenant shall be responsible for the cost of recording any short form or memorandum of this Lease, including any transfer or other taxes incurred in connection with such recordation. Neither party shall record this Lease.

40.6. Where applicable in this Lease, the singular includes the plural and the masculine or neuter includes the masculine, feminine and neuter. The words "include," "includes," "included" and "including" mean "'include,' etc., without limitation." The word "shall" is mandatory and the word "may" is permissive. The word "business day" means a calendar day other than any national or local holiday on which federal government agencies in the County of San Diego are closed for business, or any weekend. The section headings of this Lease are not a part of this Lease and shall have no effect upon the construction or interpretation of any part of this Lease. Landlord and Tenant have each participated in the drafting and negotiation of this Lease, and the language in all parts of this Lease shall be in all cases construed as a whole according to its fair meaning and not strictly for or against either Landlord or Tenant.

40.7. Except as otherwise expressly set forth in this Lease, each party shall pay its own costs and expenses incurred in connection with this Lease and such party's performance under this Lease; provided that, if either party commences an action, proceeding, demand, claim, action, cause of action or suit against the other party arising from or in connection with this Lease, then the substantially prevailing party shall be reimbursed by the other party for all reasonable costs and expenses, including reasonable attorneys' fees and expenses, incurred by the substantially prevailing party in such action, proceeding, demand, claim, action, cause of action or suit, and in any appeal in connection therewith (regardless of whether the applicable action, proceeding, demand, claim, action, cause of action, suit or appeal is voluntarily withdrawn or dismissed). In addition, Landlord shall, upon demand, be entitled to all reasonable attorneys' fees and all other reasonable costs incurred in the preparation and service of any notice or demand hereunder, regardless of whether a legal action is subsequently commenced, or incurred

in connection with any contested matter or other proceeding in bankruptcy court concerning this Lease.

40.8. Time is of the essence with respect to the performance of every provision of this Lease.

40.9. Each provision of this Lease performable by Tenant shall be deemed both a covenant and a condition.

40.10. Notwithstanding anything to the contrary contained in this Lease, Tenant's obligations under this Lease are independent and shall not be conditioned upon performance by Landlord.

40.11. Whenever consent or approval of either party is required, that party shall not unreasonably withhold, condition or delay such consent or approval, except as may be expressly set forth to the contrary.

40.12. Any provision of this Lease that shall prove to be invalid, void or illegal shall in no way affect, impair or invalidate any other provision hereof, and all other provisions of this Lease shall remain in full force and effect and shall be interpreted as if the invalid, void or illegal provision did not exist.

40.13. Each of the covenants, conditions and agreements herein contained shall inure to the benefit of and shall apply to and be binding upon the parties hereto and their respective heirs; legatees; devisees; executors; administrators; and permitted successors and assigns. This Lease is for the sole benefit of the parties and their respective heirs, legatees, devisees, executors, administrators and permitted successors and assigns, and nothing in this Lease shall give or be construed to give any other person or entity any legal or equitable rights. Nothing in this Section shall in any way alter the provisions of this Lease restricting assignment or subletting.

40.14. This Lease shall be governed by, construed and enforced in accordance with the laws of the state in which the Premises are located, without regard to such state's conflict of law principles.

40.15. Tenant guarantees, warrants and represents that the individual or individuals signing this Lease have the power, authority and legal capacity to sign this Lease on behalf of and to bind all entities, corporations, partnerships, limited liability companies, joint venturers or other organizations and entities on whose behalf such individual or individuals have signed.

40.16. This Lease may be executed in one or more counterparts, each of which, when taken together, shall constitute one and the same document.

40.17. No provision of this Lease may be modified, amended or supplemented except by an agreement in writing signed by Landlord and Tenant.

40.18. No waiver of any term, covenant or condition of this Lease shall be binding upon Landlord unless executed in writing by Landlord. The waiver by Landlord of any breach or default of any term, covenant or condition contained in this Lease shall not be deemed to be a waiver of any preceding or subsequent breach or default of such term, covenant or condition or any other term, covenant or condition of this Lease.

40.19. To the extent permitted by Applicable Laws, the parties waive trial by jury in any action, proceeding or counterclaim brought by the other party hereto related to matters arising from or in any way connected with this Lease; the relationship between Landlord and Tenant; Tenant's use or occupancy of the Premises; or any claim of injury or damage related to this Lease or the Premises.

41. Rooftop Installation Area.

41.1. Tenant may, at no additional charge to Tenant, use those portions of the roof of the Building as may be designated by Landlord in Landlord's sole and absolute discretion for use by Tenant (the "Rooftop Installation Area") solely to operate, maintain, repair and replace rooftop antennae, mechanical (including HVAC) equipment, communications antennas and other equipment installed by Tenant in the Rooftop Installation Area in accordance with this Article ("Tenant's Rooftop Equipment"). Tenant's Rooftop Equipment shall be only for Tenant's use of the Premises for the Permitted Use.

41.2. Tenant shall install Tenant's Rooftop Equipment at its sole cost and expense, at such times and in such manner as Landlord may reasonably designate, and in accordance with this Article and the applicable provisions of this Lease regarding Alterations. Tenant's Rooftop Equipment and the installation thereof shall be subject to Landlord's prior written approval, which approval shall not be unreasonably withheld, conditioned or delayed. Among other reasons, Landlord may withhold approval if the installation or operation of Tenant's Rooftop Equipment could reasonably be expected to damage the structural integrity of the Building or to transmit vibrations or noise or cause other adverse effects beyond the Premises to an extent not customary in first class laboratory buildings, unless Tenant implements measures that are acceptable to Landlord in its reasonable discretion to avoid any such damage or transmission.

41.3. Tenant shall comply with any roof or roof-related warranties. Tenant shall obtain a letter from Landlord's roofing contractor or another licensed roofing contractor reasonably approved by Landlord within thirty (30) days after completion of any Tenant work on the rooftop stating that such work did not affect any such warranties. Tenant, at its sole cost and expense, shall inspect the Rooftop Installation Area at least annually, and correct any loose bolts, fittings or other appurtenances and repair any damage to the roof arising from the installation or operation of Tenant's Rooftop Equipment. Tenant shall not permit the installation, maintenance or operation of Tenant's Rooftop Equipment to violate any Applicable Laws or constitute a nuisance. Tenant shall pay Landlord within thirty (30) days after demand (a) all applicable taxes, charges, fees or impositions imposed on Landlord by Governmental Authorities as the result of Tenant's use of the Rooftop Installation Areas in excess of those for which Landlord would otherwise be responsible for the use or installation of Tenant's Rooftop Equipment and

(b) the amount of any increase in Landlord's insurance premiums as a result of the installation of Tenant's Rooftop Equipment. Upon Tenant's written request to Landlord, Landlord shall use commercially reasonable efforts to cause other tenants to remedy any interference in the operation of Tenant's Rooftop Equipment arising from any such tenants' equipment installed after the applicable piece of Tenant's Rooftop Equipment; provided, however, that Landlord shall not be required to request that such tenants waive their rights under their respective leases.

41.4. If Tenant's Equipment (a) causes physical damage to the structural integrity of the Building, (b) interferes with any telecommunications, mechanical or other systems located at or near or servicing the Building or the Project that were installed prior to the installation of Tenant's Rooftop Equipment, (c) interferes with any other service provided to other tenants in the Building or the Project by rooftop or penthouse installations that were installed prior to the installation of Tenant's Rooftop Equipment or (d) interferes with any other tenants' business, in each case in excess of that permissible under Federal Communications Commission regulations, then Tenant shall cooperate with Landlord to determine the source of the damage or interference and promptly repair such damage and eliminate such interference, in each case at Tenant's sole cost and expense, within ten (10) days after receipt of notice of such damage or interference (which notice may be oral; provided that Landlord also delivers to Tenant written notice of such damage or interference within twenty-four (24) hours after providing oral notice).

41.5. Landlord reserves the right to cause Tenant to relocate Tenant's Rooftop Equipment to comparably functional space on the roof or in the penthouse of the Building by giving Tenant prior written notice thereof. Landlord agrees to pay the reasonable costs thereof. Tenant shall arrange for the relocation of Tenant's Rooftop Equipment within sixty (60) days after receipt of Landlord's notification of such relocation. In the event Tenant fails to arrange for relocation within such sixty (60)-day period, Landlord shall have the right to arrange for the relocation of Tenant's Rooftop Equipment in a manner that does not unnecessarily interrupt or interfere with Tenant's use of the Premises for the Permitted Use.

42. Options to Extend Term. Tenant shall have two (2) options (each, an "Option") to extend the Term by five (5) years each as to the entire Premises (and no less than the entire Premises) upon the following terms and conditions. Any extension of the Term pursuant to an Option shall be on all the same terms and conditions as this Lease, except as follows:

42.1. Base Rent at the commencement of each Option term shall equal the then-current fair market value for comparable office and laboratory space in the UTC submarket of comparable age, quality, level of finish and proximity to amenities and public transit, and containing the systems and improvements present in the Premises as of the date that Tenant gives Landlord written notice of Tenant's election to exercise such Option ("FMV"), and in each case shall be further increased on each annual anniversary of the Option term commencement date by three percent (3%). Tenant may, no more than twelve (12) months prior to the date the Term is then scheduled to expire, request Landlord's estimate of the FMV for the next Option term.

Landlord shall, within fifteen (15) days after receipt of such request, give Tenant a written proposal of such FMV. If Tenant gives written notice to exercise an Option, such notice shall specify whether Tenant accepts Landlord's proposed estimate of FMV. If Tenant does not accept the FMV, then the parties shall endeavor to agree upon the FMV, taking into account all relevant factors, including (a) the size of the Premises, (b) the length of the Option term, (c) rent in comparable buildings in the relevant submarket, including concessions offered to new tenants, such as free rent, tenant improvement allowances and moving allowances, (d) Tenant's creditworthiness and (e) the quality and location of the Building and the Project. In the event that the parties are unable to agree upon the FMV within thirty (30) days after Tenant notifies Landlord that Tenant is exercising an Option, then either party may request that the same be determined as follows: a senior officer of a nationally recognized leasing brokerage firm with local knowledge of the UTC laboratory/research and development leasing submarket (the "Baseball Arbitrator") shall be selected and paid for jointly by Landlord and Tenant. If Landlord and Tenant are unable to agree upon the Baseball Arbitrator, then the same shall be designated by the local chapter of the Judicial Arbitration and Mediation Services or any successor organization thereto (the "JAMS"). The Baseball Arbitrator selected by the parties or designated by JAMS shall (y) have at least ten (10) years' experience in the leasing of laboratory/research and development space in the UTC submarket and (z) not have been employed or retained by either Landlord or Tenant or any affiliate of either for a period of at least ten (10) years prior to appointment pursuant hereto. Each of Landlord and Tenant shall submit to the Baseball Arbitrator and to the other party its determination of the FMV. The Baseball Arbitrator shall grant to Landlord and Tenant a hearing and the right to submit evidence. The Baseball Arbitrator shall determine which of the two (2) FMV determinations more closely represents the actual FMV. The arbitrator may not select any other FMV for the Premises other than one submitted by Landlord or Tenant. The FMV selected by the Baseball Arbitrator shall be binding upon Landlord and Tenant and shall serve as the basis for determination of Base Rent payable for the applicable Option term. If, as of the commencement date of an Option term, the amount of Base Rent payable during the Option term shall not have been determined, then, pending such determination, Tenant shall pay Base Rent equal to the Base Rent payable with respect to the last year of the then-current Term. After the final determination of Base Rent payable for the Option term, the parties shall promptly execute a written amendment to this Lease specifying the amount of Base Rent to be paid during the applicable Option term. Any failure of the parties to execute such amendment shall not affect the validity of the FMV determined pursuant to this Section.

42.2. No Option is assignable separate and apart from this Lease.

42.3. An Option is conditional upon Tenant giving Landlord written notice of its election to exercise such Option at least nine (9) months prior to the end of the expiration of the then-current Term. Time shall be of the essence as to Tenant's exercise of an Option. Tenant assumes full responsibility for maintaining a record of the deadlines to exercise an Option. Tenant acknowledges that it would be inequitable to require Landlord to accept any exercise of an Option after the date provided for in this Section.

42.4. Notwithstanding anything contained in this Article to the contrary, Tenant shall not have the right to exercise an Option:

(a) During the time commencing from the date Landlord delivers to Tenant a written notice that Tenant is in monetary or material non-monetary default under any provisions of this Lease and continuing until Tenant has cured the specified default to Landlord's reasonable satisfaction; or

(b) At any time after any Default as described in Article 31 of the Lease (provided, however, that, for purposes of this Section 42.4(b), Landlord shall not be required to provide Tenant with a second notice of such Default, if such default is subject to a notice and cure period under Section 31.4, or any notice of such Default, if such default is not subject to any notice and cure period under Section 31.4) and continuing until Tenant cures any such Default, if such Default is susceptible to being cured; or

(c) In the event that Tenant has defaulted in the performance of its monetary or material non-monetary obligations under this Lease two (2) or more times during the twelve (12)-month period immediately prior to the date that Tenant intends to exercise an Option, whether or not Tenant has cured such defaults.

42.5. The period of time within which Tenant may exercise an Option shall not be extended or enlarged by reason of Tenant's inability to exercise such Option because of the provisions of Section 42.4.

42.6. All of Tenant's rights under the provisions of an Option shall terminate and be of no further force or effect even after Tenant's due and timely exercise of such Option if, after such exercise, but prior to the commencement date of the new term, (a) Tenant fails to pay to Landlord a monetary obligation of Tenant for a period of twenty (20) days after written notice from Landlord to Tenant, (b) Tenant fails to commence to cure a default (other than a monetary default) within thirty (30) days after the date Landlord gives notice to Tenant of such default or (c) Tenant has defaulted in the performance of any of its monetary or material non-monetary obligations under this Lease two (2) or more times and a service or late charge under Section 31.1 has become payable for any such default, whether or not Tenant has cured such defaults.

42.7. In the event Tenant exercises the 4575 Option (as defined below) and enters into a lease for the 4575 Building in accordance with the terms and conditions of the Option Agreement (the "4575 Lease"), then (a) Tenant acknowledges that the Term of this Lease and the term of the 4575 Lease shall be coterminous and (b) any extension of the Term of this Lease pursuant to Tenant's exercise of an Option shall be expressly conditioned and contingent upon Tenant exercising the corresponding option to extend under the 4575 Lease in accordance with the terms and conditions of the 4575 Lease.

43. Right of First Refusal. Tenant shall have a right of first refusal ("ROFR") as to any rentable premises on the first (1st) floor of the Building for which Landlord is seeking a tenant ("Available ROFR Premises"); provided, however, that in no event shall Landlord be required to

lease any Available ROFR Premises to Tenant for any period past the date on which this Lease expires or is terminated pursuant to its terms, except as expressly provided in Section 43.7 below. To the extent that Landlord renews or extends a then-existing lease with any then-existing tenant or subtenant of any space, or enters into a new lease with such then-existing tenant or subtenant for the same premises, the affected space shall not be deemed to be Available ROFR Premises. In the event Landlord receives from a third party a bona fide offer to lease Available ROFR Premises that Landlord is willing to accept or in the event that Landlord intends to enter into a lease for any Available ROFR Premises, Landlord shall provide written notice thereof to Tenant (the "Notice of Offer"), specifying the terms and conditions of a proposed lease to Tenant of the Available ROFR Premises. For the avoidance of doubt, in the event there is (at any time) any space on the first (1st) floor that Landlord intends to include in the Amenities Facilities, such space shall not be deemed to be Available ROFR Premises.

43.1. Within seven (7) business days following its receipt of a Notice of Offer, Tenant shall advise Landlord in writing whether Tenant elects to lease all (not just a portion) of the Available ROFR Premises on the terms and conditions set forth in the Notice of Offer. If Tenant fails to notify Landlord of Tenant's election within such seven (7) business day period, then Tenant shall be deemed to have elected not to lease the Available ROFR Premises.

43.2. If Tenant timely notifies Landlord that Tenant elects to lease the Available ROFR Premises on the terms and conditions set forth in the Notice of Offer, then Landlord shall lease the Available ROFR Premises to Tenant upon the terms and conditions set forth in the Notice of Offer.

43.3. If Tenant notifies Landlord that Tenant elects not to lease the Available ROFR Premises on the terms and conditions set forth in the Notice of Offer, or if Tenant fails to notify Landlord of Tenant's election within the seven (7) business day period described above, then Landlord shall have the right to consummate the lease of the Available ROFR Premises on the same terms as set forth in the Notice of Offer following Tenant's election (or deemed election) not to lease the Available ROFR Premises. If Landlord does not lease the Available ROFR Premises within twelve (12) months after Tenant's election (or deemed election) not to lease the Available ROFR Premises, then the ROFR shall be fully reinstated, and Landlord shall not thereafter lease the Available ROFR Premises without first complying with the procedures set forth in this Article.

43.4. Notwithstanding anything in this Article to the contrary, Tenant shall not exercise the ROFR during such period of time that Tenant is in monetary or material non-monetary default under any provision of this Lease. Any attempted exercise of the ROFR during a period of time in which Tenant is so in default shall be void and of no effect. In addition, Tenant shall not be entitled to exercise the ROFR if Landlord has given Tenant two (2) or more notices of default with respect to Tenant's failure to perform any of its monetary or material, non-monetary

obligations under this Lease, whether or not the defaults are cured, during the twelve (12) month period prior to the date on which Tenant seeks to exercise the ROFR.

43.5. Notwithstanding anything in this Lease to the contrary, Tenant shall not assign or transfer the ROFR, either separately or in conjunction with an assignment or transfer of Tenant's interest in the Lease (other than to Tenant's Affiliate pursuant to an Exempt Transfer), without Landlord's prior written consent, which consent Landlord may withhold in its sole and absolute discretion.

43.6. If Tenant exercises the ROFR, Landlord does not guarantee that the Available ROFR Premises will be available on the anticipated commencement date for the Lease as to such Premises due to a holdover by the then-existing occupants of the Available ROFR Premises or for any other reason beyond Landlord's reasonable control.

43.7. In the event that (a) a Notice of Offer specifies a lease term for the Available ROFR Premises that will extend past the expiration of the Term of this Lease and (b) Tenant timely elects to lease the Available ROFR Premises pursuant to the terms and conditions otherwise set forth in the Notice of Offer, then concurrently with the lease of the Available ROFR Premises, the Term of this Lease shall be extended to be coterminous with the term of the lease for the Available ROFR Premises as set forth in the Notice of Offer, provided that (i) Base Rent for the Premises at the commencement of such extended period (the "Extended Term") shall be equal to the then-current FMV as determined in accordance with the provisions of Section 42.1 and shall be further increased on each annual anniversary of the commencement date of the Extended Term by three percent (3%), and (ii) the Base Rent for the Available ROFR Premises shall be consistent with the terms and conditions set forth in the Notice of Offer. After the final determination of the Base Rent payable for the Extended Term, the parties shall promptly execute a written amendment to this Lease specifying the amount of Base Rent to be paid during the Extended Term. Any failure of the parties to execute such amendment shall not affect the validity of the Extended Term or the determination of Base Rent for the Extended Term pursuant to this Section.

44. 4575 Building Lease Option. Pursuant to and in accordance with the terms and conditions set forth in the Option Agreement, Tenant has the right, for a period of six (6) months following the Execution Date of this Lease (the "4575 Option Period"), to elect to lease the entire 4575 Building (the "4575 Option") by providing written notice (the "4575 Option Notice") to 4575 Owner prior to the expiration of the 4575 Option Period. In the event Tenant exercises the 4575 Option in accordance with the terms and conditions of the Option Agreement, Tenant shall deliver a copy of the 4575 Option Notice to Landlord concurrently with its delivery of the 4575 Option Notice to 4575 Owner. Subject to the terms and conditions of the Option Agreement, in the event that Tenant exercises the 4575 Option after August 1, 2018, then, Tenant shall elect either (a) to pay Landlord an amount equal to Landlord's and/or its affiliates design costs relating to the Amenities Facilities that were contemplated to be constructed in the 4575 Building, but no more than One Hundred Twenty-Five Thousand Dollars ($125,000) ("Option A") or (b) to

increase Base Rent for the Premises by One and 50/100 Cents ($0.015) per square foot of Rentable Area of the Premises per month ("Option B"). Tenant must elect either Option A or Option B, but Tenant's selection of either Option A or Option B shall be in Tenant's sole and absolute discretion. Tenant will notify Landlord in writing of Tenant's election of Option A or Option B (the "Election Notice") concurrently with Tenant's delivery of the 4575 Option Notice. If Tenant does not provide the Election Notice concurrently with the 4575 Option Notice, Tenant shall be deemed to have elected Option A. In the event Tenant elects (or is deemed to elect) Option A, Tenant shall pay Landlord the applicable amount (as Additional Rent) within thirty (30) days after Landlord delivers an invoice to Tenant therefore. In the event that Tenant elects Option B, (y) Base Rent under this Lease shall increase accordingly, and such increase shall be effective as of the date of the 4575 Option Notice and (z) Tenant shall, within five (5) business days of Landlord's request, enter into an amendment to this Lease to reflect such increase to Base Rent for the Premises; provided, however, that any failure of the parties to execute such an amendment shall not affect the validity of the increase in Base Rent for the Premises pursuant to this Section.

45. Landlord Improvements. Tenant acknowledges that Landlord is in the process of redeveloping or causing the redevelopment of the Project and Landlord shall be responsible, at Landlord's sole cost and expense, for causing the work described on Exhibit J attached hereto to be completed in connection therewith (the "Landlord Improvements"). As a component of the Landlord Improvements, Landlord shall construct or cause certain Amenities Facilities (as defined on Exhibit J attached hereto) to be constructed. The Landlord Improvements shall be constructed at Landlord's sole cost and expense, except that to the extent that any requirements under Applicable Laws are triggered by, or necessitated as a result of, the Tenant Improvements and/or any Alterations performed by or on behalf of Tenant (excluding any improvements required to areas outside of the Premises to comply with Applicable Laws to the extent such improvements were triggered by the initial Tenant Improvements, but not excluding any improvements required within the Premises to comply with Applicable Laws triggered by, or arising from, the initial Tenant Improvements), any costs to comply with such requirements shall be Tenant's sole responsibility and Tenant shall reimburse Landlord (as Additional Rent) for such costs within thirty (30) days of Landlord's delivery of an invoice therefor, provided that Tenant shall be entitled to utilize the TI Allowance to pay for such costs (subject to the limitations of Section 4.4 and all other provisions of this Lease and the Work Letter). Tenant acknowledges that the Term Commencement Date shall not be contingent upon, nor delayed by, the completion of the Landlord Improvements. Tenant acknowledges that Landlord or an affiliate of Landlord may be completing certain Landlord Improvements in or about the Project, Building and/or the Premises after the Term Commencement Date and during Tenant's occupancy of the Premises for the Permitted Use. Tenant shall permit Landlord or any affiliate of Landlord completing the construction of the Landlord Improvements to enter the Premises at all times (including during business hours) as may be reasonably necessary to complete the Landlord Improvements, and Tenant shall otherwise reasonably cooperate to enable Landlord and/or Landlord's affiliate to complete the Landlord Improvements in a timely and efficient manner. Without limiting Section 16.2, in no event shall the completion of the Landlord

Improvements (a) cause Rent (as defined below) to abate under this Lease, (b) give rise to any claim by Tenant for damages or (c) constitute a forcible or unlawful entry, a detainer or an eviction of Tenant. Upon the Amenities Facilities Opening Date (as defined below), the Rentable Area of the Premises under this Lease (for all purposes including, without limitation, the calculation of Base Rent) shall be increased by the sum of (m) an amount equal to Tenant's Revised Pro Rata Share of Project (as defined below) multiplied by the aggregate square footage of (i) the Amenities Facilities and (ii) any other new Project Common Area ((i) and (ii) collectively, the "New Project Common Area"), and (n) an amount equal to Tenant's Revised Pro Rata Share of Building (as defined below) multiplied by the square footage of any new Building Common Area (the "New Building Common Area"). For purposes of the immediately preceding sentence, (x) the "Tenant's Revised Pro Rata Share of Project" shall be equal to (i) the Rentable Area of the Premises, divided by (ii) the positive difference between (A) the Rentable Area of the Project and (B) the square footage of the New Project Common Area, and (y) the "Tenant's Revised Pro Rata Share of Building" shall be equal to (i) the Rentable Area of the Premises, divided by (ii) the positive difference between (A) the Rentable Area of the Building and (B) the square footage of the New Building Common Area. Tenant shall, within five (5) business days after Landlord's request, enter into an amendment to this Lease to reflect the resulting increase in Tenant's Pro Rata Shares, the Rentable Area of the Premises and Base Rent under this Lease. Any failure of the parties to execute such an amendment shall not affect the validity of the increase in Tenant's Pro Rata Shares, the Rentable Area of the Premises and/or Base Rent under this Lease pursuant to this Section. Notwithstanding anything to the contrary in this Lease, Tenant shall not be entitled to (and Landlord shall not be obligated to provide) any increased TI Allowance as a result of the aforementioned increase in Rentable Area of the Premises.

46. Amenities Facilities. As of the date (such date, the "Amenities Facilities Opening Date") the Amenities Facilities initially opens for use by Tenant and its employees (in such capacity, the "Amenities Facilities Users") the Amenities Facilities (and any service corridors, stairways, elevators, public restrooms and public lobbies allocated thereto (such allocation to be determined by Landlord in its sole and absolute discretion)) shall be included as part of the Project Common Area. To the extent the Amenities Facilities is open for use by the Amenities Facilities Users, the Amenities Facilities Users may use the Amenities Facilities during the Term on a non-exclusive basis with any other individuals approved by Landlord, the 4575 Owner or any other affiliate of Landlord; provided that, all Amenities Facilities Users execute Landlord's standard commercially reasonable waiver of liability and release form and otherwise satisfy the conditions identified below. Landlord shall have the right at any time to require that a new standard commercially reasonable waiver of liability and release form be signed by any of the Amenities Facilities Users as a condition to any further use of the Amenities Facilities by any of the Amenities Facilities Users. The use of the Amenities Facilities shall be subject to any non-discriminatory commercially reasonable rules and regulations applicable to the Amenities Facilities and any supplements thereto and Tenant shall (and shall cause all Amenities Facilities Users to) observe and comply with any such rules and regulations. Landlord and Tenant acknowledge that the use of the Amenities Facilities by the Amenities Facilities Users shall be at the Amenities Facilities Users' own risk and that the terms and provisions of Article 23 shall

apply to the use of the Amenities Facilities by the Amenities Facilities Users, or the use of any equipment located therein by the Amenities Facilities Users (whether or not authorized), whether or not such persons have properly executed Landlord's standard form waiver of liability and release form. Tenant shall be solely responsible for the proper use of the Amenities Facilities and the equipment located therein by the Amenities Facilities Users. Tenant acknowledges and agrees that Landlord shall not be obligated to provide supervision of use of the Amenities Facilities made by the Amenities Facilities Users or others. Landlord shall have the right (but not the obligation), in Landlord's sole and absolute discretion, to expand, or cause the expansion of, the Amenities Facilities. Landlord shall also have the right (in Landlord's sole and absolute discretion) to close (or cause the closure of) the Amenities Facilities. Any and all fees, costs and expenses arising from, relating to and/or in connection with operating, managing, owning, maintaining, repairing and replacing the Amenities Facilities, including any costs of operating, managing, maintaining and repairing the building in which the Amenities Facilities are located, shall be included as part of Operating Expenses (the "Amenities Facilities Operating Expenses"). No expansion or closure of the Amenities Facilities shall entitle Tenant to an abatement or reduction in Rent, constitute a constructive eviction, or result in a default by Landlord under this Lease; provided that, if the Amenities Facilities are permanently closed and are not converted into other Common Area facilities, then (a) the Rentable Area of the Premises under this Lease shall be reduced in accordance with the methodology used to increase the Rentable Area as set forth in Section 45, and (b) Base Rent and Tenant's Pro Rata Shares of the Project and Building shall be adjusted accordingly. Notwithstanding anything to the contrary in this Lease, except to the extent caused by the gross negligence or willful misconduct of Landlord or its employees (but without limiting the provisions of Sections 23.6, 28.2 and 31.12), neither Landlord nor the 4575 Owner nor any other Landlord Indemnitee shall have responsibility or any other liability to Tenant or any other Amenities Facilities User for (and Tenant, on behalf of itself and any and all Amenities Facilities Users hereby waives and releases Landlord, the 4575 Owner and all other Landlord Indemnitees from and expressly assumes the risk of) any Claims, accidents, liens or injuries of any nature, kind or description arising from (y) Tenant's or any other Amenities Facilities User's use of the Amenities Facilities and/or (z) Landlord's, the 4575 Owner's or any other Landlord Indemnitee's operation and maintenance of the Amenities Facilities.

47. Expansion Space. In the event that (a) Tenant requires additional space for its operations in the Premises, (b) Landlord and Tenant are unable to negotiate mutually acceptable terms for such expansion at the Project and (c) Landlord and Tenant or an affiliate of Landlord and Tenant are able to negotiate mutually acceptable terms for the lease of such additional space at another property owned by Landlord or an affiliate of Landlord (the "Expansion Space"), then upon the full execution of a lease for the Expansion Space (the "Expansion Lease"), Tenant shall have the unilateral right to terminate the Lease without penalty or a termination fee pursuant to this Section (the "Termination Option"); provided that, (y) the term of the Expansion Lease shall be no less than ten (10) years and (z) the size of the Expansion Space shall be no less than (i) seventy-five thousand (75,000) square feet of Rentable Area, if Tenant elects not to exercise the 4575 Option or (ii) ninety-five thousand (95,000) square feet of Rentable Area, if Tenant elects to exercise the 4575 Option. In the event Tenant elects to exercise the Termination Option, Tenant shall send written notice (the "Termination Notice") to Landlord of Tenant's election to

terminate the Lease pursuant to this Section no later than thirty (30) days following the full execution and delivery of the Expansion Lease (the "Termination Option Deadline"). The Termination Notice shall specify the effective date of such termination, which date shall be no less than ninety (90) days after Landlord's receipt of the Termination Notice. Time shall be of the essence as to Tenant's exercise of the Termination Option set forth in this Section. Tenant assumes full responsibility for maintaining a record of the Termination Option Deadline and acknowledges that it would be inequitable to require Landlord to accept any exercise of the Termination Option set forth in this Section after the Termination Option Deadline. Notwithstanding anything to the contrary set forth in this Section, neither party (nor any affiliate of Landlord) shall have any obligation to enter into or negotiate for the Expansion Lease. The Termination Option shall be personal to the original Tenant and shall only apply to the extent that the original Tenant (and not any assignee, or any sublessee or other transferee of the original Tenant's interest in this Lease, other than Tenant's Affiliate pursuant to an Exempt Transfer) is the Tenant under this Lease.

48. Hazardous Materials Shed. Subject to the terms, conditions and provisions set forth in Exhibit L attached hereto, Tenant shall have the right to use and maintain the Hazardous Materials Shed in the Hazardous Materials Shed License Area (as such terms are defined in Exhibit L) for the purposes set forth in Exhibit L. Landlord and Tenant agree that (a) the Hazardous Materials Shed License Area occupies three (3) parking spaces within the parking facilities serving the Building, and (b) Tenant's use of the Hazardous Materials Shed License Area shall count toward and reduce the number of Tenant's Allotted Parking Spaces (such that the total number of Tenant's Allotted Parking Spaces under the Lease shall be reduced by three (3) parking spaces).

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IN WITNESS WHEREOF, the parties hereto have executed this Lease as of the date first above written.

LANDLORD:

BMR-9360-9390 TOWNE CENTRE LP,
a Delaware limited partnership

By: /s/ Kevin M. Simonsen
Name: Kevin M. Simonsen
Title: Sr. Vice President, Sr. Counsel

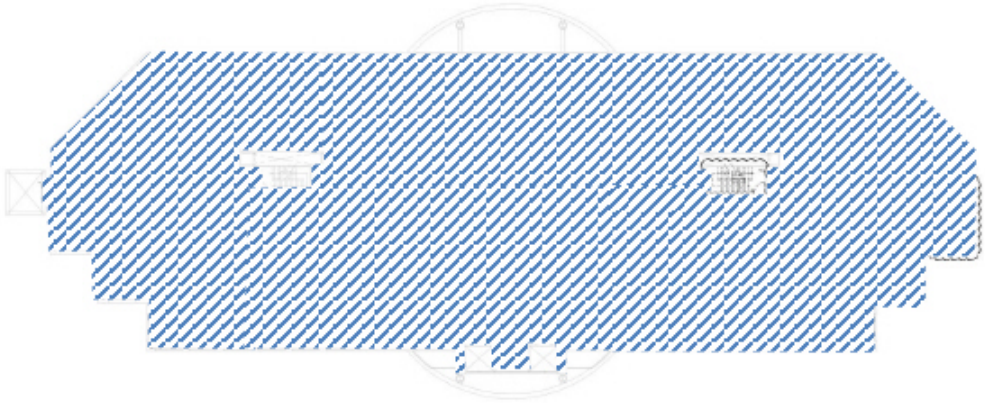
TENANT:

POSEIDA THERAPEUTICS, INC.,
a Delaware corporation

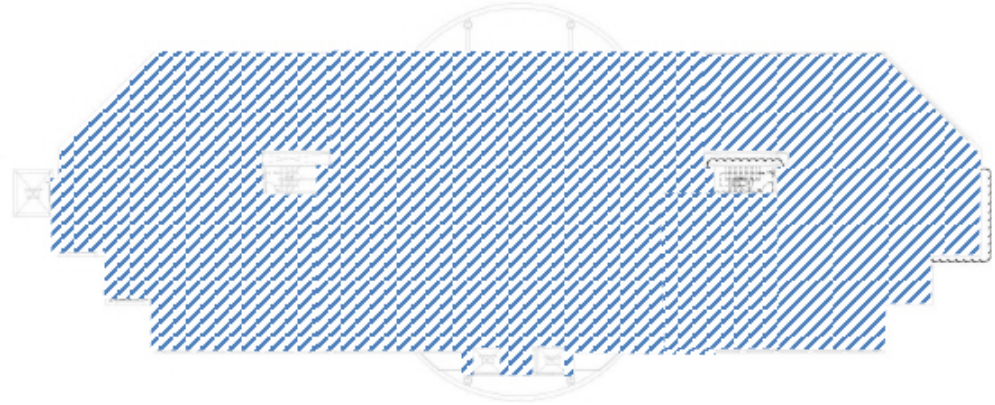
By: /s/ Mark Gergen
Name: Mark Gergen
Title: CBO & CFO

**EXHIBIT A**

**PREMISES**



9390 Towne Centre Drive – 2nd Floor



9390 Towne Centre Drive – 3rd Floor

= PREMISES

**EXHIBIT B**

**WORK LETTER**

This Work Letter (this "Work Letter") is made and entered into as of the 1st day of October, 2018, by and between BMR-9360-9390 TOWNE CENTRE LP, a Delaware limited partnership ("Landlord"), and POSEIDA THERAPEUTICS, INC., a Delaware corporation ("Tenant"), and is attached to and made a part of that certain Lease dated as of October 1, 2018 (as the same may be amended, amended and restated, supplemented or otherwise modified from time to time, the "Lease"), by and between Landlord and Tenant for the Premises located at 9390 Towne Center Drive, San Diego, California. All capitalized terms used but not otherwise defined herein shall have the meanings given them in the Lease.

1. General Requirements.

1.1. Authorized Representatives.

(a) Landlord designates, as Landlord's authorized representative ("Landlord's Authorized Representative"), (i) Federico Mina as the person authorized to initial plans, drawings, approvals and to sign change orders pursuant to this Work Letter and (ii) an officer of Landlord as the person authorized to sign any amendments to this Work Letter or the Lease. Tenant shall not be obligated to respond to or act upon any such item until such item has been initialed or signed (as applicable) by the appropriate Landlord's Authorized Representative. Landlord may change either Landlord's Authorized Representative upon one (1) business day's prior written notice to Tenant.

(b) Tenant designates Mark Gergen as the person authorized to initial and sign all plans, drawings, change orders and approvals pursuant to this Work Letter ("Tenant's Authorized Representative"). Landlord shall not be obligated to respond to or act upon any such item until such item has been initialed or signed (as applicable) by Tenant's Authorized Representative. Tenant may change Tenant's Authorized Representative upon one (1) business day's prior written notice to Landlord.

1.2. Schedule. The schedule for design and development of the Tenant Improvements, including the time periods for preparation and review of construction documents, approvals and performance, shall be in accordance with a schedule to be prepared by Landlord (the "Schedule"), which as of the Execution Date provides for Substantial Completion of the Tenant Improvements by March 15, 2019. The Schedule shall be subject to adjustment as mutually agreed upon in writing by the parties, or as otherwise provided in this Work Letter.

1.3. Landlord's Architects, Contractors and Consultants. Landlord has agreed to initially use McFarlane Architects, Inc. ("McFarlane") as the architect for the Tenant Improvements and, as of the Execution Date, intends to initially use Rudolph and Sletten, Inc. ("R&S") for the general contractor work relating to the Tenant Improvements; provided that, Landlord shall have the right, in its sole and absolute discretion, to (a) remove and replace

McFarlane with an architect selected by Landlord and (b) to select and/or remove and replace the general contractor for the Tenant Improvements; provided that, in each case (but without limiting Landlord's sole and absolute discretion in the final decision), prior to selecting a replacement architect or general contractor (as applicable), Landlord shall provide Tenant with notification (which may be provided via email to Tenant's Authorized Representative) that such architect or general contractor (as applicable) is being replaced and allow Tenant two (2) days to provide input to Landlord on Tenant's preferred replacement. Except as provided in the foregoing sentence, the engineering consultants, design team, contractors and subcontractors responsible for the construction of the Tenant Improvements shall be selected by Landlord (in Landlord's sole and absolute discretion). Without limiting the foregoing, Landlord agrees to cause the general contractor responsible for the construction of the Tenant Improvements to request multiple bids for each trade within the Tenant Improvement work that such general contractor plans to have performed by a subcontractor (individually, a "Trade" and collectively, the "Trades"); provided, however, that Tenant acknowledges that there is no assurance that such general contractor will actually receive (and Tenant shall have no recourse or remedy if such general contractor does not receive) multiple bids for any Trade.

2. Tenant Improvements. All Tenant Improvements shall be performed by Landlord's contractor, at Tenant's sole cost and expense (subject to Landlord's obligations with respect to any portion of the Base TI Allowance and, if properly requested by Tenant pursuant to the terms of the Lease, the Additional TI Allowance used by Landlord in completing the Tenant Improvements) and in substantial accordance with the Approved Plans (as defined below), the Lease and this Work Letter. To the extent that the total projected cost of the Tenant Improvements (as projected by Landlord) exceeds the TI Allowance (such excess, the "Excess TI Costs"), Tenant shall advance to Landlord any Excess TI Costs within ten (10) days after receipt of an invoice therefor, but in any case before Landlord commences the Tenant Improvements (provided that, Landlord will not submit any invoice to Tenant for Excess TI Costs until there is an Approved Budget (as defined below)). If Landlord is delayed in commencing or constructing the Tenant Improvements due to Tenant's failure to timely pay the Excess TI Costs to Landlord, Landlord shall be entitled to a day-for-day extension to achieve Substantial Completion of the Tenant Improvements for the period of such delay (for the avoidance of doubt, any resulting delay shall be deemed to be a delay (on a day-for-day basis) caused by or arising from Tenant (including for purposes of determining the Outside Date)). If the actual Excess TI Costs are less than the Excess TI Costs paid by Tenant to Landlord, Landlord shall return such overage paid by Tenant pursuant to Section 4.1. If the cost of the Tenant Improvements (as projected by Landlord) increases over Landlord's initial projection, then Landlord may notify Tenant and Tenant shall deposit any additional Excess TI Costs with Landlord in the same way that Tenant deposited the initial Excess TI Costs. If Tenant fails to pay, or is late in paying, any sum due to Landlord under this Work Letter, then Landlord shall have all of the rights and remedies set forth in the Lease for nonpayment of Rent (including the right to interest and the right to assess a late charge), and for purposes of any litigation instituted with regard to such amounts the same shall be considered Rent. All material and equipment furnished by Landlord or its contractors as the Tenant Improvements shall be new or "like new," and the Tenant Improvements shall be performed in a first-class, workmanlike manner.

Following Substantial Completion of the Tenant Improvements and upon written request from Tenant, to the extent assignable, Landlord will assign to Tenant all warranties for the Tenant Improvements actually obtained by Landlord (and Landlord agrees that its contract with the general contractor for the Tenant Improvements will include an industry standard one (1) year warranty); provided, however, that, notwithstanding any such assignment, Landlord shall also retain the right to enforce such warranties against the applicable contractor, at Landlord's sole option.

2.1. Work Plans. Landlord and Tenant have approved the schematics covering the Tenant Improvements, which are attached hereto as Exhibit B-2 and incorporated herein by reference (the "Approved Schematic Plans)."

2.2. Construction Plans. Landlord shall prepare final plans and specifications for the Tenant Improvements that (a) are consistent with and are logical evolutions of the Approved Schematic Plans and (b) incorporate any other Tenant-requested (and Landlord-approved) Changes (as defined below). As soon as such final plans and specifications ("Construction Plans") are completed, Landlord shall deliver the same to Tenant for Tenant's approval, which approval shall not be unreasonably withheld, conditioned or delayed. Such Construction Plans shall be approved or disapproved by Tenant within five (5) days after delivery to Tenant, unless the same are of the nature that more time for review is reasonably required. If Tenant fails to respond within such five (5) day period, then Landlord shall provide an additional written notice to Tenant (which may be by email to Tenant's Authorized Representative) and if Tenant fails to approve or disapprove such Construction Plans within two (2) business days after such additional written notice from Landlord, then such Construction Plans shall be deemed approved by Tenant. If the Construction Plans are disapproved by Tenant, then Tenant shall notify Landlord in writing of its reasonable objections to such Construction Plans, and the parties shall confer and negotiate in good faith to reach agreement on the Construction Plans. Promptly after the Construction Plans are approved by Landlord and Tenant, two (2) copies of such Construction Plans shall be initialed and dated by Landlord and Tenant, and Landlord shall promptly submit such Construction Plans to all appropriate Governmental Authorities for approval. The Construction Plans so approved, and all change orders specifically permitted by this Work Letter, are referred to herein as the "Approved Plans." In the event that Construction Plans are not approved by Tenant in accordance with this Section by October 19, 2018, then, notwithstanding anything in the Lease or this Work Letter to the contrary, the period of time between October 19, 2018 and the business day immediately after the day the Construction Plans are approved by Tenant in accordance with this Section shall be deemed to be a delay (on a day-for-day basis) caused by or arising from Tenant (including for purposes of determining the Outside Date).

2.3. Changes to the Tenant Improvements. Any changes to the Approved Plans (each, a "Change") shall be requested and instituted in accordance with the provisions of this Article 2 and shall be subject to the written approval of the non-requesting party in accordance with this Work Letter.

(a) Change Request. Either Landlord or Tenant may request Changes after Tenant approves the Approved Plans by notifying the other party thereof in writing in substantially the same form as the AIA standard change order form (a "Change Request"), which Change Request shall detail the nature and extent of any requested Changes, including (a) the Change, (b) the party required to perform the Change and (c) any modification of the Approved Plans and the Schedule, as applicable, necessitated by the Change. If the nature of a Change requires revisions to the Approved Plans, then the requesting party shall be solely responsible for the cost and expense of such revisions and any increases in the cost of the Tenant Improvements as a result of such Change. Change Requests shall be signed by the requesting party's Authorized Representative.

(b) Approval of Changes. All Change Requests shall be subject to the other party's prior written approval, which approval shall not be unreasonably withheld, conditioned or delayed. The non-requesting party shall have five (5) days after receipt of a Change Request to notify the requesting party in writing of the non-requesting party's decision either to approve or object to the Change Request. If the non-requesting party fails to respond within such five (5) day period, then the requesting party shall provide an additional written notice to the non-requesting party and if the non-requesting party fails to respond within two (2) business days after such additional written notice from the requesting party, then the non-requesting party shall be deemed to have approved such request. Notwithstanding the foregoing, in the event Tenant fails to respond to any request for Tenant's approval within the initial five (5) day period, such failure (no matter the cause) shall be deemed to be a delay (on a day-for-day basis) caused by or arising from Tenant (including for purposes of determining the Outside Date).

3. Requests for Consent. Except as otherwise provided in this Work Letter, Tenant shall respond to all requests for consents, approvals or directions made by Landlord pursuant to this Work Letter within five (5) days following Tenant's receipt of such request. If Tenant fails to respond within such five (5) day period, then Landlord shall provide an additional written notice to Tenant and if Tenant fails to respond within two (2) business days after such additional written notice from Landlord, then Tenant shall be deemed to have approved such request. Notwithstanding the foregoing, in the event Tenant fails to respond to any request for Tenant's consents, approvals or directions made by Landlord pursuant to this Work Letter within the initial five (5) day period, such failure (no matter the cause) shall be deemed to be a delay (on a day-for-day basis) caused by or arising from Tenant (including for purposes of determining the Outside Date).

4. TI Allowance.

4.1. Application of TI Allowance. Landlord shall contribute, in the following order, the Base TI Allowance and, if properly requested by Tenant pursuant to the terms of the Lease, the Additional TI Allowance and any Excess TI Costs advanced by Tenant to Landlord toward the costs and expenses incurred in connection with the performance of the Tenant Improvements, in accordance with Article 4 of the Lease. If the entire TI Allowance is not applied toward or reserved for the costs of the Tenant Improvements (or the other costs for which the Lease expressly permits use of the TI Allowance), then Tenant shall not be entitled to a credit of such

unused portion of the TI Allowance. If the entire Excess TI Costs advanced by Tenant to Landlord are not applied toward the costs of the Tenant Improvements, then Landlord shall return such excess to Tenant no later than sixty (60) days after completion of and the final accounting for the Tenant Improvements. Tenant may apply the Base TI Allowance and, if properly requested by Tenant pursuant to the terms of the Lease, the Additional TI Allowance for the payment of construction and other costs in accordance with the terms and provisions of the Lease.

4.2. Approval of Budget for the Tenant Improvements. Landlord shall prepare an estimated budget for the Tenant Improvements based on the Construction Plans that are approved by Landlord and Tenant (the "Estimated Budget"). Notwithstanding anything to the contrary set forth elsewhere in this Work Letter or the Lease (but subject to the proviso set forth below in this sentence), Landlord shall not have any obligation to expend any portion of the TI Allowance until Landlord and Tenant shall have approved in writing the Estimated Budget for the Tenant Improvements (the Estimated Budget, as so approved, the "Approved Budget"); provided, however, that prior to the Approved Budget, Landlord will expend a portion of the TI Allowance on certain design costs incurred by McFarlane (that Landlord is obligated to pay to McFarlane in accordance with Landlord's agreement with McFarlane) in an effort to move the Tenant Improvements towards the Approved Plans stage. During any time period prior to Landlord's approval of the Approved Budget (but subject to the proviso in the immediately preceding sentence), Tenant shall pay all of the costs and expenses incurred in connection with the Tenant Improvements as they become due. In the event there is not an Approved Budget (in accordance with the provisions of this Section) prior to the date that is the later of (a) the day that is two (2) business days after Landlord delivers the Estimated Budget to Tenant (which delivery may be made by email to Tenant's Authorized Representative) and (b) November 12, 2018 (the later of (a) and (b), the "Budget Deadline"), then, notwithstanding anything in the Lease or this Work Letter to the contrary, the period of time between the Budget Deadline and the business day immediately after the day an Approved Budget is created (in accordance with the provisions of this Section) shall be deemed to be a delay (on a day-for-day basis) caused by or arising from Tenant (including for purposes of determining the Outside Date). Tenant shall promptly reimburse Landlord for costs and expenses relating to the Tenant Improvements that exceed the amount of the TI Allowance in accordance with the terms and conditions of this Work Letter.

4.3. Fund Requests. Upon submission by Tenant to Landlord as of or prior to the TI Deadline of (a) a statement (a "Fund Request") setting forth the total amount of the TI Allowance requested, (b) a summary of the Tenant Improvements performed (or other work performed for which the TI Allowance may be used in accordance with the Lease and this Work Letter) using AIA standard form Application for Payment (G 702) executed by the person performing such services, (c) invoices from the contractors, material suppliers and other parties requesting payment with respect to the amount of the TI Allowance then being requested, (d) unconditional lien releases from the applicable contractor and each subcontractor and material supplier with respect to previous payments made by either Landlord or Tenant for the Tenant Improvements in a form acceptable to Landlord and complying with Applicable Laws and © conditional lien releases from the applicable contractor and each subcontractor and material

supplier with respect to the Tenant Improvements performed (or other work performed for which the TI Allowance may be used in accordance with the Lease and this Work Letter) that correspond to the Fund Request each in a form acceptable to Landlord and complying with Applicable Laws, then Landlord shall, within thirty (30) days following receipt by Landlord of a Fund Request and the accompanying materials required by this Section, pay to (as elected by Landlord) the applicable contractors, subcontractors and material suppliers or Tenant (for reimbursement for payments made by Tenant to such contractors, subcontractors or material suppliers either prior to Landlord's approval of the Approved Budget or as a result of Tenant's decision to pay for the Tenant Improvements itself and later seek reimbursement from Landlord in the form of one lump sum payment in accordance with the Lease and this Work Letter), the amount of Tenant Improvement costs set forth in such Fund Request; provided, however, that Landlord shall not be obligated to make any payments under this Section until the budget for the Tenant Improvements is approved in accordance with Section 4.2, and any Fund Request under this Section shall be submitted as of or prior to the TI Deadline and shall be subject to the payment limits set forth in Section 4.2 above and Article 4 of the Lease. Notwithstanding anything in this Section to the contrary, Tenant shall not submit a Fund Request after the TI Deadline or more often than every thirty (30) days. Any additional Fund Requests submitted by Tenant after the TI Deadline or more often than every thirty (30) days shall be void and of no force or effect.

5. Miscellaneous.

5.1. Incorporation of Lease Provisions. Sections 40.6 through 40.19 of the Lease are incorporated into this Work Letter by reference, and shall apply to this Work Letter in the same way that they apply to the Lease.

5.2. General. Except as otherwise set forth in the Lease or this Work Letter, this Work Letter shall not apply to improvements performed in any additional premises added to the Premises at any time or from time to time, whether by any options under the Lease or otherwise; or to any portion of the Premises or any additions to the Premises in the event of a renewal or extension of the original Term, whether by any options under the Lease or otherwise, unless the Lease or any amendment or supplement to the Lease expressly provides that such additional premises are to be delivered to Tenant in the same condition as the initial Premises.

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IN WITNESS WHEREOF, Landlord and Tenant have executed this Work Letter to be effective on the date first above written.

LANDLORD:

BMR-9360-9390 TOWNE CENTRE LP,
a Delaware limited partnership

By: /s/ Kevin M. Simonsen
Name: Kevin M. Simonsen
Title: Sr. Vice President, Sr. Counsel

TENANT:

POSEIDA THERAPEUTICS, INC.,
a Delaware corporation

By: /s/ Mark Gergen
Name: Mark Gergen
Title: CBO & CFO

**EXHIBIT B-1**

**TENANT WORK INSURANCE SCHEDULE**

Tenant shall be responsible for requiring all of Tenant contractors doing construction or renovation work to purchase and maintain such insurance as shall protect it from the claims set forth below which may arise out of or result from any Tenant Work whether such Tenant Work is completed by Tenant or by any Tenant contractors or by any person directly or indirectly employed by Tenant or any Tenant contractors, or by any person for whose acts Tenant or any Tenant contractors may be liable:

1. Claims under workers' compensation, disability benefit and other similar employee benefit acts which are applicable to the Tenant Work to be performed.

2. Claims for damages because of bodily injury, occupational sickness or disease, or death of employees under any applicable employer's liability law.

3. Claims for damages because of bodily injury, or death of any person other than Tenant's or any Tenant contractors' employees.

4. Claims for damages insured by usual personal injury liability coverage which are sustained (a) by any person as a result of an offense directly or indirectly related to the employment of such person by Tenant or any Tenant contractors or (b) by any other person.

5. Claims for damages, other than to the Tenant Work itself, because of injury to or destruction of tangible property, including loss of use therefrom.

6. Claims for damages because of bodily injury or death of any person or property damage arising from the ownership, maintenance or use of any motor vehicle.

Tenant contractors' Commercial General Liability Insurance shall include premises/operations (including explosion, collapse and underground coverage if such Tenant Work involves any underground work), elevators, independent contractors, products and completed operations, and blanket contractual liability on all written contracts, all including broad form property damage coverage.

Tenant contractors' Commercial General, Automobile, Employers and Umbrella Liability Insurance shall be written for not less than limits of liability as follows:

| | | |
|---|---|---|
| a. | Commercial General Liability:<br>Bodily Injury and Property Damage | Not less than (a) for the general contractor , $2,000,000 per occurrence and $5,000,000 general aggregate, with $5,000,000 products and completed operations aggregate, and (b) for all other contractors and subcontractors, $1,000,000 per occurrence and $2,000,000 general aggregate, with $2,000,000 products and completed operations aggregate |
| b. | Commercial Automobile Liability:<br>Bodily Injury and Property Damage | Coverage for liability arising from the use or operation of any auto on behalf of Tenant or invited by Tenant (including those owned, hired, rented, leased, borrowed, scheduled or non-owned). Coverage shall be on a broad-based occurrence form in an amount not less than $2,000,000 combined single limit per accident. Such coverage shall apply to all vehicles and persons, whether accessing the property with active or passive consent |
| c. | Employer's Liability: | |
| | Each Accident | $1,000,000 |
| | Disease – Policy Limit | $1,000,000 |
| | Disease – Each Employee | $1,000,000 |
| d. | Umbrella Liability:<br>Bodily Injury and Property Damage | (Excess of coverages a, b and c above) of not less than $5,000,000 per occurrence / aggregate |
| e. | Workers' Compensation: | As required by Applicable Laws |

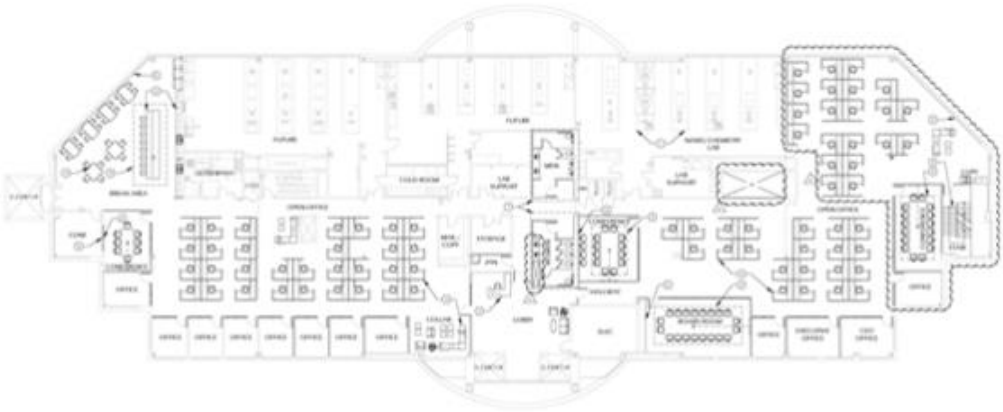
All subcontractors for Tenant contractors shall carry the same coverages and limits as specified above, unless different limits are reasonably approved by Landlord. The foregoing policies shall contain a provision that coverages afforded under the policies shall not be canceled or not renewed until at least thirty (30) days' prior written notice has been given to the Landlord.

Certificates of insurance including required endorsements showing such coverages to be in force shall be filed with Landlord prior to the commencement of any Tenant Work and prior to each renewal. Coverage for completed operations must be maintained for the lesser of ten (10) years and the applicable statue of repose following completion of the Tenant Work, and certificates evidencing this coverage must be provided to Landlord. The minimum A.M. Best's rating of each insurer shall be A- VII. Landlord, 4575 Owner, BioMed Realty LLC, BioMed Realty, L.P., BRE Edison L.P., BRE Edison LLC, BRE Edison Holdings L.P., BRE Edison Holdings LLC, BRE Edison Parent L.P. and their respective officers, employees, agents, general partners, members, subsidiaries, affiliates and Lenders shall be named as an additional insureds under Tenant contractors' Commercial General Liability, Commercial Automobile Liability, Umbrella Liability and, to the extent required by the Lease, the Work Letter or this Exhibit, Pollution Legal Liability Insurance policies as respects liability arising from work or operations performed, or ownership, maintenance or use of any autos, by or on behalf of such contractors. Each contractor and its insurers shall provide waivers of subrogation with respect to all insurance required by the Lease, the Work Letter or this Exhibit.

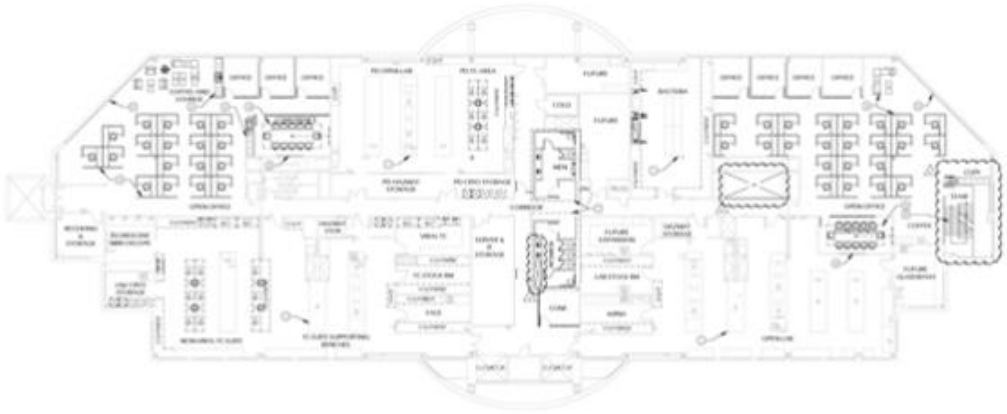
If any contractor's work involves the handling or removal of asbestos, lead or other Hazardous Materials (as determined by Landlord in its sole and absolute discretion), such contractor shall also carry Pollution Legal Liability insurance. Such coverage shall include bodily injury, sickness, disease, death or mental anguish or shock sustained by any person; property damage, including physical injury to or destruction of tangible property (including the resulting loss of use thereof), clean-up costs and the loss of use of tangible property that has not been physically injured or destroyed; and defense costs, charges and expenses incurred in the investigation, adjustment or defense of claims for such damages. Coverage shall apply to both sudden and non-sudden pollution conditions including the discharge, dispersal, release or escape of smoke, vapors, soot, fumes, acids, alkalis, toxic chemicals, liquids or gases, waste materials or other irritants, contaminants or pollutants into or upon land, the atmosphere or any watercourse or body of water. Claims-made coverage is permitted, provided the policy retroactive date is continuously maintained prior to the Term Commencement Date, and coverage is continuously maintained during all periods in which Tenant occupies the Premises. Coverage shall be maintained with limits of not less than $2,000,000 per incident with a $4,000,000 policy aggregate.

**EXHIBIT B-2**

**APPROVED SCHEMATIC PLANS**



9390 TOWNE CENTRE DRIVE - 2ND LEVEL CONCEPT PLAN (B) - POSEIDA THERAPEUTICS



9390 TOWNE CENTRE DRIVE - 3RD LEVEL CONCEPT PLAN - POSEIDA THERAPEUTICS

SCALE: 1" = 20'-0"

**EXHIBIT C**

**ACKNOWLEDGEMENT OF TERM COMMENCEMENT DATE**
**AND TERM EXPIRATION DATE**

THIS ACKNOWLEDGEMENT OF TERM COMMENCEMENT DATE AND TERM EXPIRATION DATE is entered into as of [ ], 20[ ], with reference to that certain Lease (the "Lease") dated as of [ ], 2018, by POSEIDA THERAPEUTICS, INC., a Delaware corporation ("Tenant"), in favor of BMR-9360-9390 TOWNE CENTRE LP, a Delaware limited partnership ("Landlord"). All capitalized terms used herein without definition shall have the meanings ascribed to them in the Lease.

Tenant hereby confirms the following:

1. Tenant accepted possession of the Premises for use in accordance with the Permitted Use on [ ], 20[ ]. Tenant first occupied the Premises for the Permitted Use on [ ], 20[ ].

2. In accordance with the provisions of Article 4 of the Lease, the Term Commencement Date is [ ], 20[ ], and, unless the Lease is terminated prior to the Term Expiration Date pursuant to its terms, the Term Expiration Date shall be [ ], 20[ ].

3. The obligation to pay Rent is presently in effect and all Rent obligations on the part of Tenant under the Lease commenced to accrue on [ ], 20[ ], with Base Rent payable on the dates and amounts set forth in the chart below, subject to adjustment under the Lease (including the Base Rent Abatement as provided in Section 7.1 of the Lease, the annual Base Rent adjustments provided in Article 8 of the Lease and adjustments to Base Rent pursuant to Sections 44 and 45 of the Lease):

| Dates | Square Feet of Rentable Area* | Base Rent per Square Foot of Rentable Area | Monthly Base Rent* | Annual Base Rent* |
|---|---|---|---|---|
| Term Commencement Date – Month 12 | 53,110 | $ 3.90 monthly | $207,129.00 | $2,485,548.00 |

** Note: Subject to adjustment as provided in this Lease.*

[REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, Tenant has executed this Acknowledgment of Term Commencement Date and Term Expiration Date as of the date first written above.

TENANT:

POSEIDA THERAPEUTICS, INC.,
a Delaware corporation

By: _____
Name: _____
Title: _____]

**EXHIBIT D**

**FORM OF ADDITIONAL TI ALLOWANCE ACCEPTANCE LETTER**

[TENANT LETTERHEAD]

BMR-9360-9390 Towne Centre LP
17190 Bernardo Center Drive
San Diego, California 92128
Attn: Legal Department

[Date]

Re: [Additional TI Allowance]

To Whom It May Concern:

This letter concerns that certain Lease dated as of [ ], 20[ ] (the "Lease"), between BMR-9360-9390 Towne Centre LP ("Landlord") and Poseida Therapeutics, Inc. ("Tenant"). Capitalized terms not otherwise defined herein shall have the meanings given them in the Lease.

Tenant hereby notifies Landlord that it wishes to exercise its right to utilize [$ ] of the Additional TI Allowance pursuant to Article 4 of the Lease.

If you have any questions, please do not hesitate to call [ ] at ([ ]) [ ]-[ ].

Sincerely,

[Name]
[Title of Authorized Signatory]

cc: Karen Sztraicher
Jon Bergschneider
Kevin Simonsen

**EXHIBIT E**

**FORM OF LETTER OF CREDIT**

[On letterhead or L/C letterhead of Issuer]

**LETTER OF CREDIT**

Date: , 20

(the "Beneficiary")

Attention: _____
L/C. No.: _____
Loan No. : _____

Ladies and Gentlemen:

We establish in favor of Beneficiary our irrevocable and unconditional Letter of Credit numbered as identified above (the "L/C") for an aggregate amount of $ , expiring at :00 p.m. on or, if such day is not a Banking Day, then the next succeeding Banking Day (such date, as extended from time to time, the "Expiry Date"). "Banking Day" means a weekday except a weekday when commercial banks in are authorized or required to close.

We authorize Beneficiary to draw on us (the "Issuer") for the account of (the "Account Party"), under the terms and conditions of this L/C.

Funds under this L/C are available by presenting the following documentation (the "Drawing Documentation"): (a) the original L/C and (b) a sight draft substantially in the form of Attachment 1, with blanks filled in and bracketed items provided as appropriate. No other evidence of authority, certificate, or documentation is required.

Drawing Documentation must be presented at Issuer's office at on or before the Expiry Date by personal presentation, courier or messenger service, or fax. Presentation by fax shall be effective upon electronic confirmation of transmission as evidenced by a printed report from the sender's fax machine. After any fax presentation, but not as a condition to its effectiveness, Beneficiary shall with reasonable promptness deliver the original Drawing Documentation by any other means. Issuer will on request issue a receipt for Drawing Documentation.

We agree, irrevocably, and irrespective of any claim by any other person, to honor drafts drawn under and in conformity with this L/C, within the maximum amount of this L/C, presented

to us on or before the Expiry Date, provided we also receive (on or before the Expiry Date) any other Drawing Documentation this L/C requires.

We shall pay this L/C only from our own funds by check or wire transfer, in compliance with the Drawing Documentation.

If Beneficiary presents proper Drawing Documentation to us on or before the Expiry Date, then we shall pay under this L/C at or before the following time (the "Payment Deadline"): (a) if presentment is made at or before noon of any Banking Day, then the close of such Banking Day; and (b) otherwise, the close of the next Banking Day. We waive any right to delay payment beyond the Payment Deadline. If we determine that Drawing Documentation is not proper, then we shall so advise Beneficiary in writing, specifying all grounds for our determination, within one Banking Day after the Payment Deadline.

Partial drawings are permitted. This L/C shall, except to the extent reduced thereby, survive any partial drawings.

We shall have no duty or right to inquire into the validity of or basis for any draw under this L/C or any Drawing Documentation. We waive any defense based on fraud or any claim of fraud.

The Expiry Date shall automatically be extended by one year (but never beyond (the "Outside Date")) unless, on or before the date 90 days before any Expiry Date, we have given Beneficiary notice that the Expiry Date shall not be so extended (a "Nonrenewal Notice"). We shall promptly upon request confirm any extension of the Expiry Date under the preceding sentence by issuing an amendment to this L/C, but such an amendment is not required for the extension to be effective. We need not give any notice of the Outside Date.

Beneficiary may from time to time without charge transfer this L/C, in whole but not in part, to any transferee (the "Transferee"). Issuer shall look solely to Account Party for payment of any fee for any transfer of this L/C. Such payment is not a condition to any such transfer. Beneficiary or Transferee shall consummate such transfer by delivering to Issuer the original of this L/C and a Transfer Notice substantially in the form of Attachment 2, purportedly signed by Beneficiary, and designating Transferee. Issuer shall promptly reissue or amend this L/C in favor of Transferee as Beneficiary. Upon any transfer, all references to Beneficiary shall automatically refer to Transferee, who may then exercise all rights of Beneficiary. Issuer expressly consents to any transfers made from time to time in compliance with this paragraph.

Any notice to Beneficiary shall be in writing and delivered by hand with receipt acknowledged or by overnight delivery service such as FedEx (with proof of delivery) at the above address, or such other address as Beneficiary may specify by written notice to Issuer. A copy of any such notice shall also be delivered, as a condition to the effectiveness of such notice, to: (or such replacement as Beneficiary designates from time to time by written notice).

No amendment that adversely affects Beneficiary shall be effective without Beneficiary's written consent.

This L/C is subject to and incorporates by reference: (a) the International Standby Practices 98 ("ISP 98"); and (b) to the extent not inconsistent with ISP 98, Article 5 of the Uniform Commercial Code of the State of New York.

Very truly yours,

[Issuer Signature]

**ATTACHMENT 1 TO EXHIBIT E**

FORM OF SIGHT DRAFT

[BENEFICIARY LETTERHEAD]

TO:

[Name and Address of Issuer]

**SIGHT DRAFT**

AT SIGHT, pay to the Order of , the sum of United States Dollars ($ ). Drawn under [Issuer] Letter of Credit No. dated .

[Issuer is hereby directed to pay the proceeds of this Sight Draft solely to the following account: .]

[Name and signature block, with signature or purported signature of Beneficiary]

Date: _____

**ATTACHMENT 2 TO EXHIBIT E**

FORM OF TRANSFER NOTICE

[BENEFICIARY LETTERHEAD]

TO:

[Name and Address of Issuer] (the "Issuer")

**TRANSFER NOTICE**

By signing below, the undersigned, Beneficiary (the "Beneficiary") under Issuer's Letter of Credit No. dated (the "L/C"), transfers the L/C to the following transferee (the "Transferee"):

[Transferee Name and Address]

The original L/C is enclosed. Beneficiary directs Issuer to reissue or amend the L/C in favor of Transferee as Beneficiary. Beneficiary represents and warrants that Beneficiary has not transferred, assigned, or encumbered the L/C or any interest in the L/C, which transfer, assignment, or encumbrance remains in effect.

[Name and signature block, with signature or purported signature of Beneficiary]

Date: _____]

**EXHIBIT F**

**RULES AND REGULATIONS**

NOTHING IN THESE RULES AND REGULATIONS ("RULES AND REGULATIONS") SHALL SUPPLANT ANY PROVISION OF THE LEASE. IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN THESE RULES AND REGULATIONS AND THE LEASE, THE LEASE SHALL PREVAIL.

1. No Tenant Party shall encumber or obstruct the common entrances, lobbies, elevators, sidewalks and stairways of the Building(s) or the Project or use them for any purposes other than ingress or egress to and from the Building(s) or the Project.

2. Except as specifically provided in the Lease, no sign, placard, picture, advertisement, name or notice shall be installed or displayed on any part of the outside of the Premises or the Building(s) without Landlord's prior written consent. Landlord shall have the right to remove, at Tenant's sole cost and expense and without notice, any sign installed or displayed in violation of this rule.

3. If Landlord objects in writing to any curtains, blinds, shades, screens, hanging plants or other similar objects attached to or used in connection with any window or door of the Premises or placed on any windowsill, and (a) such window, door or windowsill is visible from the exterior of the Premises and (b) such curtain, blind, shade, screen, hanging plant or other object is not included in plans approved by Landlord, then Tenant shall promptly remove such curtains, blinds, shades, screens, hanging plants or other similar objects at its sole cost and expense.

4. No deliveries shall be made that impede or interfere with other tenants in or the operation of the Project. Movement of furniture, office equipment or any other large or bulky material(s) through the Common Area shall be restricted to such hours as Landlord may designate and shall be subject to reasonable restrictions that Landlord may impose.

5. Tenant shall not place a load upon any floor of the Premises that exceeds the load per square foot that (a) such floor was designed to carry or (b) is allowed by Applicable Laws. Fixtures and equipment that cause noises or vibrations that may be transmitted to the structure of the Building(s) to such a degree as to be objectionable to other tenants shall be placed and maintained by Tenant, at Tenant's sole cost and expense, on vibration eliminators or other devices sufficient to eliminate such noises and vibrations to levels reasonably acceptable to Landlord and the affected tenants of the Project.

6. Tenant shall not use any method of HVAC other than that present at the Project and serving the Premises as of the Execution Date or as otherwise approved in writing by Landlord.

7. Tenant shall not install any radio, television or other antennae; cell or other communications equipment; or other devices on the roof or exterior walls of the Premises except in accordance with the Lease. Tenant shall not interfere with radio, television or other digital or electronic communications at the Project or elsewhere.

8. Canvassing, peddling, soliciting and distributing handbills or any other written material within, on or around the Project (other than within the Premises) are prohibited. Tenant shall cooperate with Landlord to prevent such activities by any Tenant Party.

9. Tenant shall store all of its trash, garbage and Hazardous Materials in receptacles within its Premises or in receptacles designated by Landlord outside of the Premises. Tenant shall not place in any such receptacle any material that cannot be disposed of in the ordinary and customary manner of trash, garbage and Hazardous Materials disposal. Any Hazardous Materials transported through Common Area shall be held in secondary containment devices. Tenant shall be responsible, at its sole cost and expense, for Tenant's removal of its trash, garbage and Hazardous Materials. Tenant is encouraged to participate in the waste removal and recycling program in place at the Project.

10. The Premises shall not be used for lodging or for any improper, immoral or objectionable purpose. No cooking shall be done or permitted in the Premises; provided, however, that Tenant may use (a) equipment approved in accordance with the requirements of insurance policies that Landlord or Tenant is required to purchase and maintain pursuant to the Lease for brewing coffee, tea, hot chocolate and similar beverages, (b) microwave ovens for employees' use and (c) equipment shown on Tenant Improvement plans approved by Landlord; provided, further, that any such equipment and microwave ovens are used in accordance with Applicable Laws.

11. Tenant shall not, without Landlord's prior written consent, use the name of the Project, if any, in connection with or in promoting or advertising Tenant's business except as Tenant's address.

12. Tenant shall comply with all safety, fire protection and evacuation procedures and regulations established by Landlord or any Governmental Authority.

13. Tenant assumes any and all responsibility for protecting the Premises from theft, robbery and pilferage, which responsibility includes keeping doors locked and other means of entry to the Premises closed.

14. Tenant shall not modify any locks to the Premises without Landlord's prior written consent, which consent Landlord shall not unreasonably withhold, condition or delay. Tenant shall furnish Landlord with copies of keys, pass cards or similar devices for locks to the Premises.

15. Tenant shall cooperate and participate in all reasonable security programs affecting the Premises.

16. Tenant shall not permit any animals in the Project, other than for service animals or for use in laboratory experiments.

17. Bicycles shall not be taken into the Building(s) (including the elevators and stairways of the Building) except into areas designated by Landlord.

18. The water and wash closets and other plumbing fixtures shall not be used for any purposes other than those for which they were constructed, and no sweepings, rubbish, rags or other substances shall be deposited therein.

19. Discharge of industrial sewage shall only be permitted if Tenant, at its sole expense, first obtains all necessary permits and licenses therefor from all applicable Governmental Authorities.

20. Smoking and vaping are prohibited inside the Building, except in designated outdoor areas of the Project (if any).

21. The Project's hours of operation are currently 24 hours a day, seven days a week.

22. Tenant shall not permit any fire-arms in the Project.

23. Tenant shall comply with all orders, requirements and conditions now or hereafter imposed by Applicable Laws or Landlord ("Waste Regulations") regarding the collection, sorting, separation and recycling of waste products, garbage, refuse and trash generated by Tenant (collectively, "Waste Products"), including (without limitation) the separation of Waste Products into receptacles reasonably approved by Landlord and the removal of such receptacles in accordance with any collection schedules prescribed by Waste Regulations.

24. Tenant, at Tenant's sole cost and expense, shall cause the Premises to be exterminated on a monthly basis to Landlord's reasonable satisfaction and shall cause all portions of the Premises used for the storage, preparation, service or consumption of food or beverages to be cleaned daily in a manner reasonably satisfactory to Landlord, and to be treated against infestation by insects, rodents and other vermin and pests whenever there is evidence of any infestation. Tenant shall not permit any person to enter the Premises or the Project for the purpose of providing such extermination services, unless such persons have been approved by Landlord. If requested by Landlord, Tenant shall, at Tenant's sole cost and expense, store any refuse generated in the Premises by the consumption of food or beverages in a cold box or similar facility.

25. If Tenant desires to use any portion of the Common Area for a Tenant-related event, Tenant must notify Landlord in writing at least thirty (30) days prior to such event on the form attached as Attachment 1 to this Exhibit, which use shall be subject to Landlord's prior written consent, not to be unreasonably withheld, conditioned or delayed. Notwithstanding anything in this Lease or the completed and executed Attachment to the contrary, Tenant shall be solely responsible for setting up and taking down any equipment or other materials required for the event, and shall promptly pick up any litter and report any property damage to Landlord related

to the event. Any use of the Common Area pursuant to this Section shall be subject to the provisions of Article 28 of the Lease.

26. Landlord or its designee will establish rules and regulations applicable to use of the Amenities Facilities and will have the right to revoke or refuse access to the Amenities Facilities to any user who violates such rules and regulations or behaves in a manner which causes a disturbance or interference with other users of the Amenities Facilities.

Landlord may waive any one or more of these Rules and Regulations for the benefit of Tenant or any other tenant, but no such waiver by Landlord shall be construed as a waiver of such Rules and Regulations in favor of Tenant or any other tenant, nor prevent Landlord from thereafter enforcing any such Rules and Regulations against any or all of the tenants of the Project, including Tenant. Any consent, approval or waiver required of Landlord under these Rules and Regulations shall not be unreasonably withheld. These Rules and Regulations are in addition to, and shall not be construed to in any way modify or amend, in whole or in part, the terms covenants, agreements and conditions of the Lease. Landlord reserves the right to make such other and reasonable, non-discriminatory additional rules and regulations as, in its judgment, may from time to time be needed for safety and security, the care and cleanliness of the Project, or the preservation of good order therein; provided, however, that Tenant shall not be obligated to adhere to such additional rules or regulations until Landlord has provided Tenant with written notice thereof. Tenant agrees to abide by these Rules and Regulations and any such additional rules and regulations issued or adopted by Landlord. Tenant shall be responsible for the observance of these Rules and Regulations by all Tenant Parties.

**ATTACHMENT 1 TO EXHIBIT F**

**REQUEST FOR USE OF COMMON AREA**

REQUEST FOR USE OF COMMON AREA

Date of Request: _____

Landlord/Owner: _____

Tenant/Requestor: _____

Property Location: _____

Event Description: _____

_____

_____

Proposed Plan for Security & Cleaning: _____

Date of Event: _____

Hours of Event: (to include set-up and take down): _____

Location at Property (see attached map): _____

Number of Attendees: _____

Open to the Public? [___] YES [___] NO

Food and/or Beverages? [___] YES [___] NO

If YES:

- Will food be prepared on site? [___] YES [___] NO
- Please describe: _____
- Will alcohol be served? [___] YES [___] NO
- Please describe: _____
- Will attendees be charged for alcohol? [___] YES [___] NO

- Is alcohol license or permit required? [___] YES [___] NO
- Does caterer have alcohol license or permit: [___] YES [___] NO [___] N/A

Other Amenities (tent, booths, band, food trucks, bounce house, etc.): _____

_____

_____

Other Event Details or Special Circumstances: _____

_____

_____

_____

_____

The undersigned certifies that the foregoing is true, accurate and complete and he/she is duly authorized to sign and submit this request on behalf of the Tenant/Requestor named above.

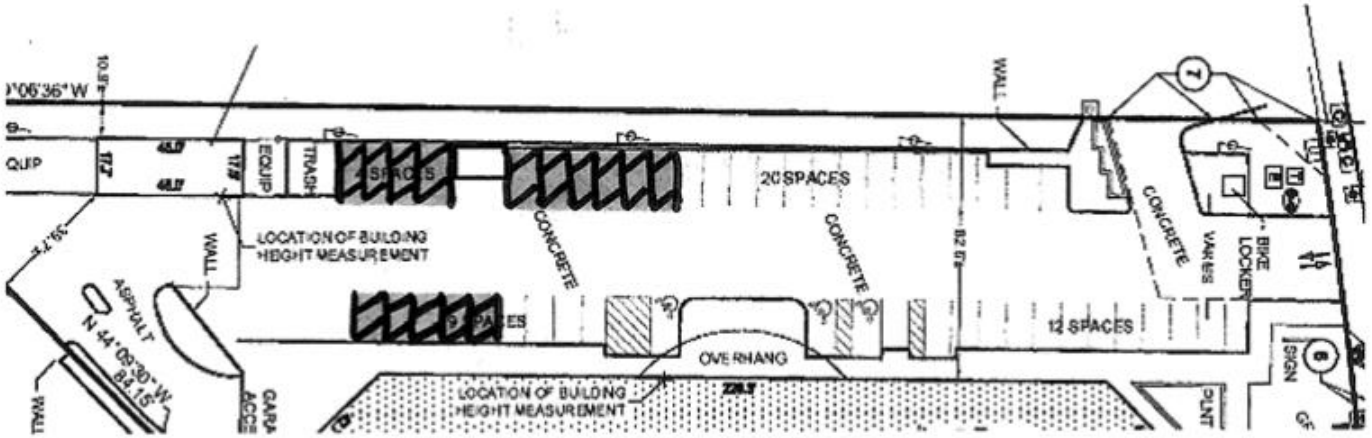
[*INSERT NAME OF TENANT/REQUESTOR*]

By: _____
Name: _____
Title: _____
Date: _____

**EXHIBIT G**

**LOCATION OF VISITOR PARKING SPACES**

[See attached]




= visitor parking spaces

Note: This exhibit is only intended to show the location of the visitor parking spaces in accordance with Section 13.3 of the Lease. Landlord makes no covenants, representations or warranties with respect to anything set forth on this Exhibit, including any measurements and whether any such depicted items exist on the Property or the Project. Landlord may relocate the visitor parking spaces by providing Tenant with written notice thereof.

**EXHIBIT H**

**TENANT'S PROPERTY**

None.

**EXHIBIT I**

**FORM OF ESTOPPEL CERTIFICATE**

To: BMR-9360-9390 Towne Center LP
17190 Bernardo Center Drive
San Diego, California 92128
Attention: Legal Department

BioMed Realty, L.P.
17190 Bernardo Center Drive
San Diego, California 92128

Re: [PREMISES ADDRESS] (the "Premises") at [STREET ADDRESS], [CITY AND STATE] (the "Property")

The undersigned tenant ("Tenant") hereby certifies to you as follows:

1. Tenant is a tenant at the Property under a lease (the "Lease") for the Premises dated as of [ ], 20[ ]. The Lease has not been cancelled, modified, assigned, extended or amended [except as follows: [ ]], and there are no other agreements, written or oral, affecting or relating to Tenant's lease of the Premises or any other space at the Property. The lease term expires on [ ], 20[ ].

2. Tenant took possession of the Premises, currently consisting of [ ] square feet, on [ ], 20[ ], and commenced to pay rent on [ ], 20[ ]. Tenant has full possession of the Premises, has not assigned the Lease or sublet any part of the Premises, and does not hold the Premises under an assignment or sublease[, except as follows: [ ]].

3. All base rent, rent escalations and additional rent under the Lease have been paid through [ ], 20[ ]. There is no prepaid rent[, except $[ ]][, and the amount of security deposit is $[ ] [in cash][OR][in the form of a letter of credit]]. Tenant currently has no right to any future rent abatement under the Lease[, except as follows: [ ]].

4. Base rent is currently payable in the amount of $[ ] per month.

5. Tenant is currently paying estimated payments of additional rent of $[ ] per month on account of real estate taxes, insurance, management fees and Common Area maintenance expenses.

6. All work to be performed for Tenant under the Lease has been performed as required under the Lease and has been accepted by Tenant[, except [ ]], and all allowances to be paid to Tenant, including allowances for tenant improvements, moving expenses or other items, have been paid.

7. The Lease is in full force and effect, and, to the best of Tenant's knowledge, (a) is free from default and free from any event that could become a default under the Lease, and (b) Tenant has no claims against the landlord or offsets or defenses against rent, and (c) there are no disputes with the landlord. Tenant has received no notice of prior sale, transfer, assignment, hypothecation or pledge of the Lease or of the rents payable thereunder[, except [ ]].

8. [Tenant has the following expansion rights or options for leasing additional space at the Property: [ ].][OR][Tenant has no rights or options to purchase the Property.]

9. To Tenant's knowledge, no hazardous wastes have been generated, treated, stored or disposed of by or on behalf of Tenant in, on or around the Premises or the Project in violation of any environmental laws.

10. The undersigned has executed this Estoppel Certificate with the knowledge and understanding that [INSERT NAME OF LANDLORD, PURCHASER OR LENDER, AS APPROPRIATE] or its assignee is [acquiring the Property/making a loan secured by the Property] in reliance on this certificate and that the undersigned shall be bound by this certificate. The statements contained herein may be relied upon by [INSERT NAME OF PURCHASER OR LENDER, AS APPROPRIATE], [LANDLORD], BioMed Realty, L.P., BRE Edison L.P., and any [other] mortgagee of the Property and their respective successors and assigns.

Any capitalized terms not defined herein shall have the respective meanings given in the Lease.

Dated this [ ] day of [ ], 20[ ].

[ ],
a [ ]

By: _____
Name: _____
Title: _____

**EXHIBIT J**

**DESCRIPTION OF LANDLORD IMPROVEMENTS**

- Relocation of the stairway that is currently on the East side of the Building to the East exterior wall.
- Submetering for electricity serving the Premises.
- Landscaping and hardscaping in the courtyard between Building and the building located at 9360 Towne Centre Drive, San Diego, California, as generally shown on the site plan attached as **Exhibit K** (the "Landlord Improvements Site Plan").
- Modification to the existing restrooms on each floor of the Building to bring such restrooms into compliance with the ADA (in effect and as interpreted as of the Execution Date).
- Creation of a Building common lobby.
- Certain amenities for the Project selected by Landlord, which, at a minimum, will include a café and fitness center, but shall otherwise be determined by Landlord in Landlord's sole and absolute discretion (the "Amenities Facilities"). Any such amenities shall be referred to as the "Amenities Facilities Services"). Tenant acknowledges that Landlord is currently planning to construct (or cause the 4575 Owner to construct) the Amenities Facilities in the 4575 Building; provided, however, in the event that Tenant exercises the 4575 Option, the Amenities Facilities will be constructed in one or more different buildings at the Project.
- The Landlord Improvements Site Plan shall be subject to modification as may be required to comply with Applicable Laws or as otherwise reasonably determined by Landlord to be necessary or appropriate for the overall benefit of the Project.

**EXHIBIT K**

**LANDLORD IMPROVEMENTS SITE PLAN**

[See attached]

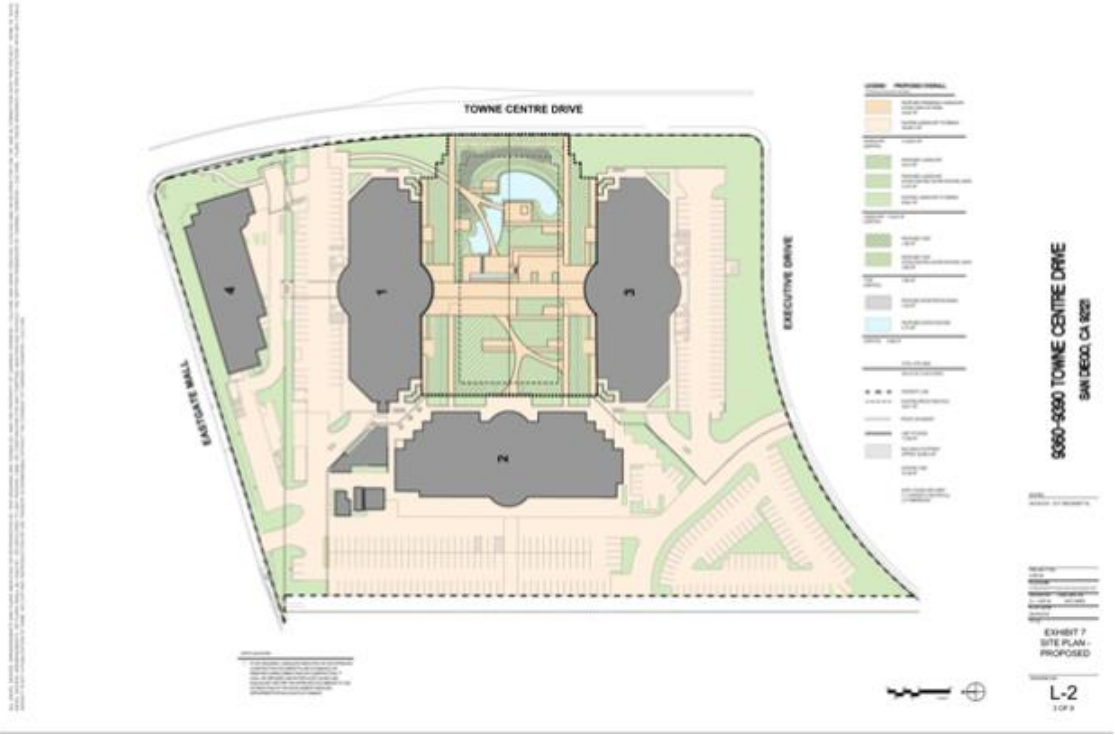


**EXHIBIT L**

**HAZARDOUS MATERIALS SHED**

1. License. Landlord hereby grants to Tenant a temporary, non-exclusive and revocable (at will, with or without cause) license (the "Hazardous Materials Shed License") to use (during the License Term (as defined below)) that certain hazardous materials shed (the "Hazardous Materials Shed") located in the surface parking lot serving the Building (the "Hazardous Materials Shed License Area"), each as depicted in Schedule 1 attached hereto for the sole purpose of storing Tenant's Hazardous Materials in accordance with Applicable Laws and all of the terms, conditions and provisions of this Exhibit L and the Lease. The Hazardous Materials Shed License may not be Transferred (separately or in conjunction with the Lease) to any other person or entity without Landlord's prior written consent in its sole and absolute discretion, and any such purported Transfer of the Hazardous Materials Shed License shall be null and void and shall, at the option of Landlord, terminate the Hazardous Materials Shed License. During the License Term, Landlord shall not grant any other tenant or third party a right or license to use the Hazardous Materials Shed nor shall Landlord use the Hazardous Materials Shed, except in connection with the exercise of any of Landlord's rights pursuant to this Exhibit L and the Lease. Landlord shall be deemed to represent as of the Term Commencement Date that Landlord has not granted to any other party a right or license to use the Hazardous Materials Shed that remains in effect.

2. Term. The actual term of the Hazardous Materials Shed License (as the same may be earlier terminated or revoked in accordance this Exhibit L, the "License Term") shall commence on the Term Commencement Date and, if not revoked earlier by Landlord, end upon the the expiration (or earlier termination) of the Term of the Lease, subject to earlier termination of the Hazardous Materials Shed License as provided herein.

2.1. Provided Tenant is not in default of its obligations pursuant to this Exhibit L, Tenant may terminate the Hazardous Materials Shed License at any time (for any reason or no reason) by providing Landlord written notice thereof (a "Tenant License Termination Notice"), which Tenant License Termination Notice shall specify the date of such termination (which date shall be no sooner than thirty (30) days after Tenant's delivery (or deemed delivery) of such Tenant License Termination Notice to Landlord). In the event Tenant delivers a Tenant License Termination Notice, then provided that Tenant is not in default of its obligations pursuant to this Exhibit L, the Hazardous Materials Shed License and the License Term shall terminate on the date specified in the Tenant License Termination Notice and the Hazardous Materials Shed License shall be of no further force or effect as of such date, except with respect to those provisions that expressly survive the expiration or earlier termination thereof. Notwithstanding anything to the contrary, Landlord may terminate the Hazardous Materials Shed License at any time (for any reason or no reason) by providing Tenant written notice thereof (a "Landlord License Termination Notice"), which Landlord License Termination Notice shall specify the date

of such termination (which date shall be no sooner than thirty (30) days after Landlord's delivery (or deemed delivery) of such Landlord License Termination Notice to Tenant). In the event Landlord delivers a Landlord License Termination Notice, then the Hazardous Materials Shed License and the License Term shall terminate on the date specified in the Landlord License Termination Notice and the Hazardous Materials Shed License shall be of no further force or effect as of such date, except with respect to those provisions that expressly survive the expiration or earlier termination thereof.

3. Use and Surrender. The use of the Hazardous Materials Shed License Area shall be limited to only the storage of Tenant's Hazardous Materials within the Hazardous Materials Shed (during the License Term only); provided, however, that Tenant shall (at Tenant's sole cost and expense), during the License Term, (a) procure and maintain all required permits and approvals under Applicable Laws for the use of the Hazardous Materials Shed and the storage of Tenant's Hazardous Materials therein in accordance with the terms of this Exhibit L and the Lease, (b) store such Hazardous Materials in compliance with all such permits and approvals, Applicable Laws and the terms and provisions of this Exhibit L and the Lease, (c) not do or permit anything to be done in or about the Hazardous Materials Shed and/or the Hazardous Materials Shed License Area that shall in any way obstruct or interfere with the rights of other tenants or occupants of the Project, or injure or annoy them, (d) not use the Hazardous Materials Shed and/or the Hazardous Materials Shed License Area, or allow the Hazardous Materials Shed and/or the Hazardous Materials Shed License Area to be used, for unlawful purposes and (e) ensure that there is not any nuisance or waste caused, maintained or permitted in the Hazardous Materials Shed and/or the Hazardous Materials Shed License Area. Tenant's use and surrender of the Hazardous Materials Shed and the Hazardous Materials Shed License Area shall be subject to all of the same rights of Landlord and all of the duties, obligations, covenants and liabilities of Tenant set forth in the Lease with respect to Tenant's use, occupancy and surrender of the Premises (including, without limitation, Article 21 and Section 26.1 of the Lease), and any violation or breach by Tenant of such duties, obligations, covenants and liabilities with respect to the Hazardous Materials Shed and/or the Hazardous Materials Shed License Area shall be a Default under the Lease to the same extent that a violation by Tenant of such duties, obligations, covenants and liabilities with respect to the Premises would be a Default under the Lease. Without limiting anything in this Section, upon the expiration or earlier termination of the Hazardous Materials Shed License, Tenant shall (y) promptly remove all Hazardous Materials from and properly decommission and decontaminate the Hazardous Materials Shed and the Hazardous Materials Shed License Area, and (z) restore and thereafter surrender the Hazardous Materials Shed and the Hazardous Materials Shed License Area to the same condition each was in on the commencement date of the License Term, ordinary wear and tear excepted. The provisions of this Section shall survive the expiration or earlier termination of the Hazardous Materials Shed License.

4. Maintenance; No Improvements. During the License Term, Tenant shall (a) maintain and keep the Hazardous Materials Shed and the Hazardous Materials Shed License

Area in good condition and repair and (b) replace the Hazardous Materials Shed as needed, in each case at Tenant's sole cost and expense. Tenant shall be solely responsible (and Landlord shall not be liable) for keeping the Hazardous Materials Shed and the Hazardous Materials Shed License Area in compliance with all Applicable Laws, including making any Alterations that may be required for compliance with Applicable Laws, subject to the terms and conditions of this Exhibit L and the Lease. Notwithstanding anything in the Lease to the contrary, Tenant shall not make any improvements, alterations or changes of any kind to the Hazardous Materials Shed or the Hazardous Materials Shed License Area without Landlord's prior written approval (which approval may be withheld by Landlord in Landlord's sole and absolute discretion).

5. Landlord Exculpation. Landlord shall not be liable to Tenant for, and Tenant assumes all risk of, damage to the Hazardous Materials Shed (and/or damage to any item or property stored within the Hazardous Materials Shed) including, without limitation, (a) damage or losses caused by fire, electrical malfunction, gas explosion or water damage of any type (including, without limitation, broken water lines, malfunctioning fire sprinkler systems, roof leaks or stoppages of lines) and (b) damage to personal property or scientific research, including loss of records kept by Tenant within the Hazardous Materials Shed and/or the Hazardous Materials Shed License Area (in each case, regardless of whether such damages are foreseeable). Tenant further waives any claim for injury to Tenant's business or loss of income relating to any such damage or destruction as described in this Section. The provisions of this Section shall survive any expiration or earlier termination of the Hazardous Materials Shed License.

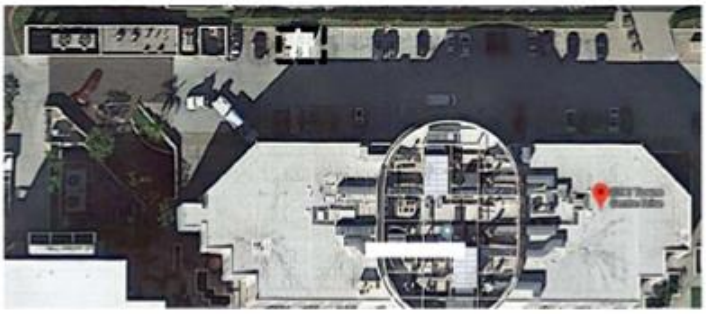
6. Insurance; Indemnification. Tenant shall cause all insurance policies required to be maintained by Tenant pursuant to the Lease to cover (a) the presence, use, operation, maintenance, repair and replacement of the Hazardous Materials Shed, and (b) any Hazardous Materials or other property stored within the Hazardous Materials Shed. Without limiting the provisions of Section 28.1 of the Lease, Tenant hereby agrees to Indemnify the Landlord Indemnitees from any Claims in connection with or arising from (y) the presence, use, operation, maintenance, repair or replacement of the Hazardous Materials Shed, and/or (b) any Hazardous Materials or other property stored within the Hazardous Materials Shed and/or the Hazardous Materials Shed License Area. The provisions of this Section shall survive any expiration or earlier termination of the Hazardous Materials Shed License.

7. Condition of Hazardous Materials Shed License Area. Tenant acknowledges and agrees that (a) Tenant has had sufficient opportunity to inspect the Hazardous Materials Shed and Hazardous Materials Shed License Area and is fully familiar with the condition of the Hazardous Materials Shed and Hazardous Materials Shed License Area, and, notwithstanding anything contained in the Lease to the contrary, Tenant agrees to take the Hazardous Materials Shed and Hazardous Materials Shed License Area in its condition "as is" as of the Term Commencement Date (as defined in the Lease), (b) Landlord has not made and does not make any representation or warranty of any kind, express or implied, with respect to the Hazardous Materials Shed and/or the Hazardous Materials Shed License Area, including but not limited to any representation or

warranty that the Hazardous Materials Shed and/or the Hazardous Materials Shed License Area is suitable for the use set forth in Section 3, and (c) Landlord shall have no obligation to alter, repair or otherwise prepare the Hazardous Materials Shed and/or the Hazardous Materials Shed License Area for Tenant's use of the Hazardous Materials Shed and/or the Hazardous Materials Shed License Area or to pay for any improvements to or alterations of Hazardous Materials Shed and/or the Hazardous Materials Shed License Area.

**SCHEDULE 1 TO EXHIBIT L**

**HAZARDOUS MATERIALS SHED AND HAZARDOUS MATERIALS SHED LICENSE AREA**

= HAZARDOUS MATERIALS SHED LICENSE AREA

**FIRST AMENDMENT TO LEASE**

THIS FIRST AMENDMENT TO LEASE (this "Amendment") is entered into as of this 4 day of October, 2019 (the "First Amendment Execution Date"), by and between BMR-9360-9390 TOWNE CENTRE LP, a Delaware limited partnership ("Landlord"), and POSEIDA THERAPEUTICS, INC., a Delaware corporation ("Tenant").

**RECITALS**

A. WHEREAS, Landlord and Tenant are parties to that certain Lease dated as of October 1, 2018 (as the same may have been amended, supplemented or modified from time to time, the "Existing Lease"), whereby Tenant leases certain premises (the "Existing Premises") from Landlord at 9390 Towne Centre Drive in San Diego, California (the "Building");

B. WHEREAS, Landlord and Tenant desire to expand the Existing Premises to include approximately fifteen thousand one hundred forty-six (15,146) square feet of Rentable Area located on the first (1st) floor of the Building, as more particularly described on Exhibit A attached hereto (the "Additional Premises"); and

C. WHEREAS, Landlord and Tenant desire to modify and amend the Existing Lease only in the respects and on the conditions hereinafter stated.

**AGREEMENT**

NOW, THEREFORE, Landlord and Tenant, in consideration of the mutual promises contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and intending to be legally bound, agree as follows:

1. Definitions. For purposes of this Amendment, capitalized terms shall have the meanings ascribed to them in the Existing Lease unless otherwise defined herein. The Existing Lease, as amended by this Amendment, is referred to collectively herein as the "Lease." From and after the date hereof, the term "Lease," as used in the Existing Lease, shall mean the Existing Lease, as amended by this Amendment.

2. Additional Premises. Effective as of the First Amendment Execution Date, Landlord hereby leases to Tenant, and Tenant hereby leases from Landlord, the Additional Premises. From and after the First Amendment Execution Date, the term "Premises" as used in the Lease shall mean the Existing Premises plus the Additional Premises.

3. Additional Premises Term. The Term with respect to the Additional Premises (the "Additional Premises Term") shall commence on the Additional Premises Term Commencement Date (as defined below) and shall expire concurrently with the Term with respect to the Existing Premises (i.e., on the Term Expiration Date of December 31, 2029). From and after the Additional Premises Term Commencement Date, the term "Term" as used in the Lease shall mean the Term with respect to the Existing Premises and the Additional Premises.

4. Permitted Use for Additional Premises. Notwithstanding anything to the contrary set forth in the Lease, the Additional Premises shall only be used for the Permitted Use set forth in Section 2.7 of the Original Lease.

5. Possession, Commencement Date and TI Allowance.

5.1. Commencement Date. The "Additional Premises Term Commencement Date" shall be the later to occur of (i) the earlier to occur of (a) the date that is nine (9) months after the First Amendment Execution Date (as such 9-month period may be extended pursuant to the provisions of Section 12 below) and (b) the day Tenant first commences to conduct business in the Additional Premises and (ii) Landlord's completion of the Landlord Work (as defined in Section 12 below). Tenant shall execute and deliver to Landlord written acknowledgment of the actual Additional Premises Term Commencement Date (absent manifest error) within ten (10) days after Landlord delivers the Acknowledgement of Additional Premises Term Commencement Date, in the form attached as Exhibit C hereto. Failure to execute and deliver such acknowledgment, however, shall not affect the Additional Premises Term Commencement Date or Landlord's or Tenant's liability hereunder. Failure by Tenant to obtain validation by any medical review board or other similar governmental licensing of the Additional Premises required for the Permitted Use by Tenant shall not serve to extend the Additional Premises Term Commencement Date.

5.2. Possession. Landlord shall grant possession of the Additional Premises to Tenant following the First Amendment Execution Date to construct the improvements in the Additional Premises in accordance with the Work Letter attached hereto as Exhibit B (the "Work Letter"). As a condition to Tenant's entry into the Additional Premises, Tenant shall furnish to Landlord evidence satisfactory to Landlord in advance that insurance coverages required of Tenant under the provisions of Article 23 of the Existing Lease are in effect (including with respect to the Additional Premises), and such entry shall be subject to all the terms and conditions of the Lease. Commencing on the First Amendment Execution Date, Tenant shall be responsible for all utilities with respect to the Additional Premises.

5.3. Allowance. Tenant shall cause the work described in the Work Letter (the "Additional Improvements") to be constructed in the Additional Premises pursuant to the Work Letter at a cost to Landlord not to exceed (a) One Million Sixty Thousand Two Hundred Twenty Dollars ($1,060,220.00) (based upon Seventy-Dollars ($70.00) per square foot of Rentable Area of the Additional Premises) ("Additional Premises Base TI Allowance") plus (b) if properly requested by Tenant pursuant to this Section 5.3, Four Hundred Fifty-Four Thousand Three Hundred Eighty Dollars ($454,380.00) (based upon Thirty Dollars ($30.00) per square foot of Rentable Area of the Additional Premises) ("Additional Premises Additional TI Allowance"), for a total of up to One Million Five Hundred Fourteen Thousand Six Hundred Dollars ($1,514,600.00) (based upon One Hundred Dollars ($100.00) per square foot of Rentable Area of the Additional Premises); provided, however, that Landlord shall only make the Additional Premises Additional TI Allowance available to Tenant in installments equal to One Hundred Fifty-One Thousand Four Hundred Sixty Dollars ($151,460.00) (based upon Ten Dollars ($10.00) per square foot of Rentable Area of the Additional Premises) (each an

"Additional Premises Additional TI Allowance Installment"). The Additional Premises Base TI Allowance, together with the Additional Premises Additional TI Allowance (if property requested by Tenant pursuant to this Section 5.3) shall be referred to herein as the "Additional Premises TI Allowance." The Additional Premises TI Allowance may be applied to the costs of (a) construction, (b) project review by Landlord (which fee shall equal one percent (1%) of the cost of the Additional Improvements, including the Additional Premises Base TI Allowance and, if used by Tenant, the Additional Premises Additional TI Allowance), (c) commissioning of mechanical, electrical and plumbing systems by a licensed, qualified commissioning agent hired by Tenant, and review of such party's commissioning report by a licensed, qualified commissioning agent hired by Landlord, (d) space planning, architect, engineering and other related services performed by third parties unaffiliated with Tenant, (e) building permits and other taxes, fees, charges and levies by Governmental Authorities for permits or for inspections of the Additional Improvements, (f) costs and expenses for labor, material, equipment, fixtures, furniture, signage and cabling, provided that, no more than Seventy-Five Thousand Seven Hundred Thirty Dollars ($75,730.00) (based upon Five Dollars ($5.00) per square foot of Rentable Area of the Additional Premises) of the Additional Premises Base TI Allowance may be used towards the cost of furniture, signage, movable equipment, data or cabling, and (g) a project management fee for Tenant's construction manager; provided that, no more than three percent (3%) of the Additional Premises TI Allowance shall be applied to such project management fee. In no event shall the Additional Premises TI Allowance be used for (h) the cost of work that is not authorized by the Approved Plans (as defined in the Work Letter), (i) except as otherwise specifically provided in this Section 5.3 with respect to the Additional Premises Base TI Allowance, the purchase of any furniture, signage, data, cabling, personal property or movable equipment, (j) costs arising from any default of Tenant of its obligations under the Lease or (k) costs that are recoverable by Tenant from a third party (e.g. insurers, warrantors or tortfeasors). Landlord shall not be obligated to expend any portion of the Additional Premises Additional TI Allowance(s) until Landlord shall have received from Tenant a letter in the form attached as Exhibit D hereto executed by an authorized officer of Tenant with respect to each Additional Premises Additional TI Allowance Installment. In no event shall any unused Additional Premises TI Allowance entitle Tenant to a credit against Rent payable under the Lease.

5.4. Deadline. Tenant shall have until the date that is six (6) months following the Additional Premises Term Commencement Date (the "Additional Premises TI Deadline"), to submit Fund Requests (as defined in the Work Letter) to Landlord for disbursement of the unused portion of the Additional Premises TI Allowance, after which date Landlord's obligation to fund any such costs for which Tenant has not submitted a Fund Request to Landlord shall expire. Commencing on the Additional Premises Term Commencement Date, the initial monthly Base Rent rate (per square foot of Rentable Area per month) for the Additional Premises shall be increased by Ten Cents ($0.10) for each Additional Premises Additional TI Allowance Installment of the Additional Premises Additional TI Allowance disbursed by Landlord in accordance with Section 5.3 above. The amount by which Base Rent shall be increased shall be determined (and Base Rent shall be increased accordingly) as of the Additional Premises Term Commencement Date and, if such determination does not reflect use by Tenant of all of the Additional Premises Additional TI Allowance, shall be determined again as of the Additional

Premises TI Deadline, with Tenant paying (on the next succeeding day that Base Rent is due under the Lease (the "Additional Premises TI True-Up Date")) any underpayment of the further adjusted Base Rent for the period beginning on the Additional Premises Term Commencement Date and ending on the Additional Premises TI True-Up Date. Notwithstanding anything to the contrary, the portion of Base Rent payable with respect to the Additional Premises that is attributable to any Additional Premises Additional TI Allowance Installment shall not be abated during the Additional Premises Base Rent Abatement Period (as defined in Section 6.2 below), and shall be subject to the annual increases set forth in the Existing Lease.

6. Base Rent.

6.1. Additional Premises Base Rent. As of the Additional Premises Term Commencement Date, the initial monthly Base Rent rate (per square foot of Rentable Area per month) for the Additional Premises shall equal the same monthly Base Rent rate (per square foot of Rentable Area per month) as is then applicable to the Existing Premises; provided, however, that the initial monthly Base Rent rate (per square foot of Rentable Area per month) for the Additional Premises shall be increased in accordance with Section 5.3 above in connection with any Additional Premises Additional TI Allowance Installment disbursed by Landlord. Base Rent for the Additional Premises during the Additional Premises Term (including any increased amounts attributable to any Additional Premises Additional TI Allowance Installments disbursed by Landlord pursuant to Section 5.3 above) shall be subject to the annual escalations set forth in Article 8 of the Existing Lease, with each annual escalations for the Additional Premises occurring at the same time as the annual escalations for the Existing Premises.

6.2. Additional Premises Base Rent Abatement Period. So long as no Default by Tenant has occurred and subject to the last grammatical sentence of Section 5.4 above, Tenant shall be entitled to receive an abatement of Tenant's Base Rent obligation for the Additional Premises for the first (1st) seven (7) complete calendar months of the Additional Premises Term (such period, the "Additional Premises Base Rent Abatement Period"). No Base Rent attributable to Landlord's disbursement of any Additional Premises Additional TI Allowance Installment shall be abated. During the Additional Premises Base Rent Abatement Period, Tenant shall continue to be responsible for the payment of all of Tenant's other Rent obligations under the Lease with respect to the Additional Premises, including, without limitation, all Additional Rent such as Operating Expenses, the Property Management Fee, and costs of utilities for the Additional Premises. Upon the occurrence of any Default, the Additional Premises Base Rent Abatement Period shall immediately expire, and Tenant shall no longer be entitled to any further abatement of Base Rent pursuant to this Section. In the event of any Default that results in termination of the Lease, then, as part of the recovery to which Landlord is entitled pursuant to the Lease, and in addition to any other rights or remedies to which Landlord may be entitled pursuant to the Lease (including Article 31 of the Existing Lease), at law or in equity, Landlord shall be entitled to the immediate recovery, as of the day immediately prior to such termination of the Lease, of the unamortized amount of Base Rent that Tenant would have paid had the Additional Premises Base Rent Abatement Period not been in effect.

6.3. Existing Premises. For avoidance of doubt, Base Rent for the Additional Premises shall be in addition to the Base Rent payable by Tenant with respect to the Existing Premises. Throughout the Term, Base Rent for the Existing Premises shall continue to be payable as provided in the Existing Lease (including, without limitation, the annual escalations set forth therein). The Base Rent for the Existing Premises shall not be abated during the Additional Premises Base Rent Abatement Period.

6.4. Adjustment. For avoidance of doubt, Base Rent for the entire Premises (including the Additional Premises and the Existing Premises) shall be subject to adjustment as set forth in Article 45 of the Existing Lease.

7. Tenant's Pro Rata Shares. Notwithstanding anything to the contrary in the Lease, commencing as of the Additional Premises Term Commencement Date, the chart in Section 2.2 of the Existing Lease shall be deleted in its entirety and replaced with the following:

| Definition or Provision | Means the Following (As of the Additional Premises Term Commencement Date) |
|---|---|
| Approximate Rentable Area of Premises* | 68,256 square feet |
| Approximate Rentable Area of Building* | 74,360 square feet |
| Approximate Rentable Area of Project* | 163,070 square feet |
| Tenant's Pro Rata Share of Building* | 91.79% |
| Tenant's Pro Rata Share of Project* | 41.86% |

* Upon the Amenities Facilities Opening Date (as defined in Section 45 of the Existing Lease), the Rentable Area of the entire Premises, the Building and the Project, as well as Tenant's Pro Rata Share of the Project and Tenant's Pro Rata Share of the Building shall increase as provided in Section 45 of the Existing Lease.

8. Controllable Operating Expenses. The Cap on Controllable Operating Expenses set forth in Section 9.1(d) of the Existing Lease shall apply as to both the Existing Premises and the Additional Premises. However, the Controllable Operating Expenses Baseline shall mean the aggregate amount of Controllable Operating Expenses incurred by Landlord and/or the 4575 Owner for the 2020 calendar year, and in calculating the Controllable Operating Expenses Baseline the Additional Premises will be treated as if it was fully occupied by Tenant throughout the entire 2020 calendar year.

9. Security Deposit. The Security Deposit shall be increased by Fifty-Nine Thousand Sixty-Nine and 40/100 Dollars ($59,069.40) (the "First Amendment Additional Security Deposit"). Tenant shall deposit with Landlord on or before the First Amendment Execution Date the First Amendment Additional Security Deposit. The First Amendment Additional Security Deposit shall become part of the Security Deposit (for a total of Two Hundred Sixty-Six Thousand One Hundred Ninety-Eight and 40/100 Dollars ($266,198.40)) and shall be subject to the terms and conditions of the Lease (including Article 11 of the Original Lease). From and after the First Amendment Execution Date, Section 2.6 of the Original Lease is hereby modified such that "$207,129.00" is replaced with "$266,198.40."

10. 4575 Building Lease Option. Effective as of the First Amendment Execution Date, Section 44 of the Existing Lease shall be deemed deleted and of no further force or effect.

11. Expansion Space. Effective as of the First Amendment Execution Date, Section 47 of the Existing Lease shall be restated in its entirety as follows: "47 Expansion Space. In the event that (a) Tenant requires additional space for its operations in the Premises, (b) Landlord and Tenant are unable to negotiate mutually acceptable terms of such expansion at the Project, and (c) Landlord and Tenant or an affiliate of the then current Landlord and Tenant are able to negotiate mutually acceptable terms for the lease of such additional space at another property owned by Landlord or an affiliate of the then current Landlord (the "Expansion Space"), then upon the full execution of a lease for the Expansion Space (the "Expansion Lease"), Tenant shall have the unilateral right to terminate the Lease as to the entire Premises without penalty or a termination fee pursuant to this Section 47 (the "Termination Option"); provided that, (y) the term of the Expansion Lease shall be no less than ten (10) years and (z) the size of the Expansion Space shall be no less than one hundred twenty-five thousand (125,000) square feet of Rentable Area. In the event Tenant elects to exercise the Termination Option, Tenant shall send written notice (the "Termination Notice") to Landlord of Tenant's election to terminate the Lease pursuant to this Section 47 no later than thirty (30) days following the full execution and delivery of the Expansion Lease (the "Termination Option Deadline"). The Termination Notice shall specify the effective date of such termination, which date shall be no less than ninety (90) days after Landlord's receipt of the Termination Notice. Time shall be of the essence as to Tenant's exercise of the Termination Option set forth in this Section 47. Tenant assumes full responsibility for maintaining a record of the Termination Option Deadline and acknowledges that it would be inequitable to require Landlord to accept any exercise of the Termination Option set forth in this Section 47 after the Termination Option Deadline. Notwithstanding anything to the contrary set forth in this Section 47, neither party (nor any affiliate of Landlord) shall have any obligation to enter into or negotiate for the Expansion Lease. The Termination Option shall be personal to the original Tenant and shall only apply to the extent that the original Tenant (and not any assignee, or any sublessee or other transferee of the original Tenant's interest in the Lease, other than Tenant's Affiliate pursuant to an Exempt Transfer) is the Tenant under the Lease."

12. Condition of Additional Premises. Tenant acknowledges that, except for the completion of the Landlord Work (as defined in this Section 12 below), (a) it is fully familiar with the condition of the Additional Premises and, notwithstanding anything to the contrary in the Lease, agrees to take the same in its condition "as is" as of the First Amendment Execution Date, (b) neither Landlord nor any agent of Landlord has made (and neither Landlord nor any agent of Landlord hereby makes) any representation or warranty of any kind whatsoever, express or implied, regarding the Additional Premises, including (without limitation) any representation or warranty with respect to the condition of the Additional Premises or with respect to the

suitability of the Additional Premises for the conduct of Tenant's business and (c) Landlord shall have no obligation to alter, repair or otherwise prepare the Additional Premises for Tenant's occupancy or to pay for any improvements to the Additional Premises, except with respect to payment of the Additional Premises TI Allowance. The Additional Premises have not undergone inspection by a Certified Access Specialist (as defined in California Civil Code Section 55.52). Tenant's taking possession of the Additional Premises shall, except as otherwise agreed to in writing by Landlord and Tenant, conclusively establish that the Additional Premises, the Building and the Project were at such time in good, sanitary and satisfactory condition and repair. Notwithstanding the foregoing, Landlord shall complete, at its own cost the work described on Exhibit E attached hereto (collectively, the "Landlord Work"); provided, however, if the Additional Improvements set forth on the Approved Plans causes additional costs to be incurred by Landlord in the performance of the Landlord Work, Tenant shall pay to Landlord as Additional Rent the reasonable amount of any such additional costs within thirty (30) days after receiving an invoice from Landlord. Landlord shall perform the Landlord Work concurrently with Tenant's prosecution of the Additional Improvements. If Landlord's performance of the Landlord Work actually delays Tenant's prosecution of the Additional Improvements ("Landlord Delay"), then the 9-month period set forth in Section 5.1 above shall be extended one day for each day of such actual delay. Notwithstanding the foregoing, no Landlord Delay pursuant to the preceding sentence shall be deemed to have occurred unless and until Tenant has provided written notice to Landlord specifying the action or inaction that Tenant contends constitutes a Landlord Delay. If such action or inaction is not cured within one (1) business day after Landlord's receipt of such notice, then a Landlord Delay, as set forth in such notice, shall be deemed to have occurred commencing as of the date such notice is received and continuing for the number of days that completion of the Additional Improvements was in fact delayed as a result of such action or inaction. Except to the extent it delays the Additional Premises Term Commencement Date in accordance with the preceding three sentences or the provisions of Section 5.1 above (in which case Tenant's remedies shall be as set forth in the applicable provisions above), in no event shall Landlord's construction of any portion of the Landlord Work (i) cause Rent to abate under the Lease (including this Amendment), (ii) give rise to any claim by Tenant for damages or (iii) constitute a forcible or unlawful entry, a detainer or an eviction of Tenant.

13. Parking. Effective as of the Additional Premises Term Commencement Date and continuing throughout the Additional Premises Term (as may be extended), (a) the number of Allotted Parking Spaces shall be increased to a total of one hundred eighty (180) non-exclusive parking spaces at no additional cost to Tenant, (b) Tenant shall have the right to mark (at Tenant's sole cost and expense) up to three (3) additional visitor parking spaces for Tenant's exclusive use (for a total of eighteen (18) visitor parking spaces for Tenant's exclusive use) provided that such designation shall constitute use thereof and such visitor parking spaces shall be part of and not in addition to the Tenant's Allotted Parking Spaces set forth above, and (c) Exhibit G attached hereto shall replace Exhibit G attached to the Existing Lease and such Exhibit G attached hereto shows the location of all eighteen (18) of Tenant's visitor parking spaces for Tenant's exclusive use. Except as provided in this Section 13, Tenant's use of such additional parking spaces shall be in accordance with, and subject to, all parking provisions of the Lease.

14. Options to Extend Term. The two (2) five (5) year Options to extend the Term set forth in Section 42 of the Existing Lease shall apply collectively to the Existing Premises and the Additional Premises (i.e., Tenant must exercise an Option concurrently as to both such spaces or as to none of such spaces).

15. Broker. Tenant represents and warrants that it has not dealt with any broker or agent in the negotiation for or the obtaining of this Amendment, other than Cushman & Wakefield of San Diego, Inc. ("Broker"), and agrees to reimburse, indemnify, save, defend (at Landlord's option and with counsel reasonably acceptable to Landlord, at Tenant's sole cost and expense) and hold harmless the Landlord Indemnitees for, from and against any and all cost or liability for compensation claimed by any such broker or agent, other than Broker, employed or engaged by it or claiming to have been employed or engaged by it. Broker is entitled to a leasing commission in connection with the making of this Amendment, and Landlord shall pay such commission to Broker pursuant to a separate agreement between Landlord and Broker.

16. No Default. Tenant represents, warrants and covenants that, to the best of Tenant's knowledge, Landlord and Tenant are not in default of any of their respective obligations under the Existing Lease and no event has occurred that, with the passage of time or the giving of notice (or both) would constitute a default by either Landlord or Tenant thereunder. Landlord represents, warrants and covenants that, to the best of Landlord's knowledge, Landlord and Tenant are not in default of any of their respective obligations under the Existing Lease and no event has occurred that, with the passage of time or the giving of notice (or both) would constitute a default by either Landlord or Tenant thereunder.

17. Effect of Amendment. Except as modified by this Amendment, the Existing Lease and all the covenants, agreements, terms, provisions and conditions thereof shall remain in full force and effect and are hereby ratified and affirmed. In the event of any conflict between the terms contained in this Amendment and the Existing Lease, the terms herein contained shall supersede and control the obligations and liabilities of the parties.

18. Successors and Assigns. Each of the covenants, conditions and agreements contained in this Amendment shall inure to the benefit of and shall apply to and be binding upon the parties hereto and their respective heirs, legatees, devisees, executors, administrators and permitted successors and assigns and sublessees. Nothing in this section shall in any way alter the provisions of the Lease restricting assignment or subletting.

19. Miscellaneous. This Amendment becomes effective only upon execution and delivery hereof by Landlord and Tenant. The captions of the paragraphs and subparagraphs in this Amendment are inserted and included solely for convenience and shall not be considered or given any effect in construing the provisions hereof. All exhibits hereto are incorporated herein by reference. Submission of this instrument for examination or signature by Tenant does not constitute a reservation of or option for a lease, and shall not be effective as a lease, lease amendment or otherwise until execution by and delivery to both Landlord and Tenant.

20. Authority. Tenant guarantees, warrants and represents that the individual or individuals signing this Amendment have the power, authority and legal capacity to sign this Amendment on behalf of and to bind all entities, corporations, partnerships, limited liability companies, joint venturers or other organizations and entities on whose behalf such individual or individuals have signed.

21. Counterparts; Facsimile and PDF Signatures. This Amendment may be executed in one or more counterparts, each of which, when taken together, shall constitute one and the same document. A facsimile or portable document format (PDF) signature on this Amendment shall be equivalent to, and have the same force and effect as, an original signature.

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IN WITNESS WHEREOF, Landlord and Tenant have executed this Amendment as of the date and year first above written.

**LANDLORD:**

BMR-9360-9390 TOWNE CENTRE LP,
a Delaware limited partnership

By: /s/ Marie Lewis
Name: Marie Lewis
Title: Vice President, Legal

**TENANT:**

POSEIDA THERAPEUTICS, INC.,
a Delaware corporation

By: /s/ Mark Gergen
Name: Mark Gergen
Title: CFO - CBO

**EXHIBIT A**

**ADDITIONAL PREMISES**

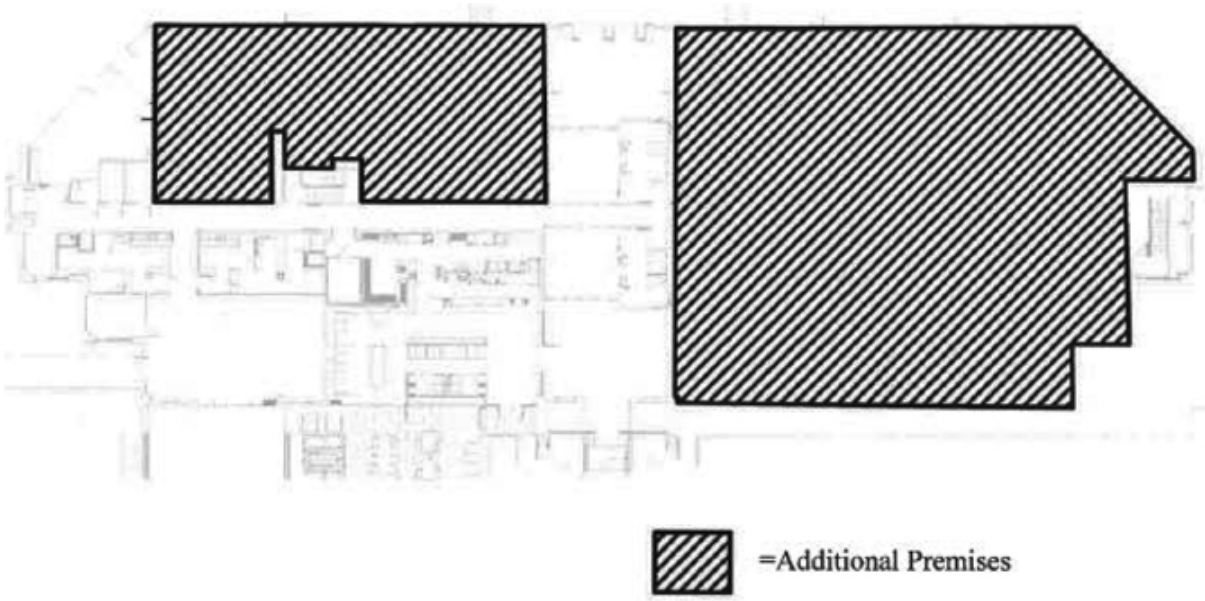

**EXHIBIT B**

**WORK LETTER**

This Work Letter (this "Work Letter") is made and entered into as of the 4th day of October, 2019, by and between BMR-9360-9390 TOWNE CENTRE LP, a Delaware limited partnership ("Landlord"), and POSEIDA THERAPEUTICS, INC., a Delaware corporation ("Tenant"), and is attached to and made a part of that certain First Amendment to Lease dated as of October 4th, 2019 (the "Amendment"), by and between Landlord and Tenant for the Additional Premises located at 9390 Towne Centre Drive, San Diego, California. All capitalized terms used but not otherwise defined herein shall have the meanings given them in the Amendment.

1. General Requirements.

1.1. Authorized Representatives.

(a) Landlord designates, as Landlord's authorized representative ("Landlord's Authorized Representative"), (i) Federico Mina as the person authorized to initial plans, drawings, approvals and to sign change orders pursuant to this Work Letter and (ii) an officer of Landlord as the person authorized to sign any amendments to this Work Letter or the Lease. Tenant shall not be obligated to respond to or act upon any such item until such item has been initialed or signed (as applicable) by the appropriate Landlord's Authorized Representative. Landlord may change either Landlord's Authorized Representative upon one (1) business day's prior written notice to Tenant.

(b) Tenant designates Jeff Knight ("Tenant's Authorized Representative") as the person authorized to initial and sign all plans, drawings, change orders and approvals pursuant to this Work Letter. Landlord shall not be obligated to respond to or act upon any such item until such item has been initialed or signed (as applicable) by Tenant's Authorized Representative. Tenant may change Tenant's Authorized Representative upon one (1) business day's prior written notice to Landlord.

1.2. Schedule. The schedule for design and development of the Additional Improvements, including the time periods for preparation and review of construction documents, approvals and performance, shall be in accordance with a schedule to be prepared by Tenant (the "Schedule"). Tenant shall prepare the Schedule so that it is a reasonable schedule for the completion of the Additional Improvements. The Schedule shall clearly identify all activities requiring Landlord participation, including specific dates and time periods when Tenant's contractor will require access to areas of the Project outside of the Additional Premises. As soon as the Schedule is completed, Tenant shall deliver the same to Landlord for Landlord's approval, which approval shall not be unreasonably withheld, conditioned or delayed. Such Schedule shall be approved or disapproved by Landlord within ten (10) business days after delivery to Landlord. Landlord's failure to respond within such ten (10) business day period shall be deemed approval by Landlord. If Landlord disapproves the Schedule, then Landlord shall notify Tenant in writing of its objections to such Schedule, and the parties shall confer and negotiate in good faith to reach agreement on the Schedule. The Schedule shall be subject to adjustment as mutually agreed upon in writing by the parties, or as provided in this Work Letter.

1.3. Tenant's Architects, Contractors and Consultants. The architect, engineering consultants, design team, general contractor and subcontractors responsible for the construction of the Additional Improvements ("Tenant's Agents") shall be selected by Tenant and approved by Landlord, which approval Landlord shall not unreasonably withhold, condition or delay. Such selections of Tenant's Agents shall be approved or disapproved by Landlord within three (3) business days after delivery of a request notice to Landlord. If Landlord does not respond within such three (3) business day period, Tenant may send a second request notice to Landlord and if Landlord does not respond within two (2) business days after delivery of such second notice to Landlord, such selections shall be deemed approval by Landlord. If Landlord disapproves the selections of Tenant's Agents, then Landlord shall notify Tenant in writing of its objections to such selections, and the parties shall confer and negotiate in good faith to reach agreement on such selections. Landlord and Tenant shall each participate in the review of the competitive bid process, but all final decisions as to the hiring of Tenant's Agents approved (or deemed approved) by Landlord in accordance with this Section 1.3 above shall be in Tenant's sole and absolute discretion. Landlord may refuse to use any architects, consultants, contractors, subcontractors or material suppliers that Landlord reasonably believes could cause labor disharmony or may not have sufficient experience, in Landlord's reasonable opinion, to perform work in an occupied Class "A" laboratory research building and in lab areas. All Tenant contracts related to the Additional Improvements shall provide that Tenant may assign such contracts and any warranties with respect to the Additional Improvements to Landlord at any time.

2. Additional Improvements. All Additional Improvements shall be performed by Tenant's contractor, at Tenant's sole cost and expense (subject to Landlord's obligations with respect to any portion of the Additional Premises Base TI Allowance and, if properly requested by Tenant pursuant to the terms of the Amendment, the Additional Premises Additional TI Allowance(s)) and in accordance with the Approved Plans (as defined below) and this Work Letter. To the extent that the total projected cost of the Additional Improvements (as projected by Landlord) exceeds the Additional Premises TI Allowance (such excess, the "Excess TI Costs"), Tenant shall pay the costs of the Additional Improvements on a pari passu basis with Landlord as such costs are paid, in the proportion of Excess TI Costs payable by Tenant to the Additional Premises Base TI Allowance (and, if properly requested by Tenant pursuant to this Lease, the Additional Premises Additional TI Allowance[s]) payable by Landlord. All material and equipment furnished by Tenant or its contractors as the Additional Improvements shall be new or "like new;" the Additional Improvements shall be performed in a first-class, workmanlike manner; and the quality of the Additional Improvements shall be of a nature and character not less than the Building Standard. Tenant shall take, and shall require its contractors to take, commercially reasonable steps to protect the Additional Premises during the performance of any Additional Improvements, including covering or temporarily removing any window coverings so as to guard against dust, debris or damage. All Additional Improvements shall be performed in accordance with Article 17 of the Existing Lease (other than Section 17.1, the first sentence of Section 17.4, Section 17.5, Section 17.10 and Section 17.11); provided that, notwithstanding anything in the Lease or this Work Letter to the contrary, in the event of a conflict between this Work Letter and Article 17 of the Existing Lease, the terms of this Work Letter shall govern.

2.1. Work Plans. Tenant shall prepare and submit to Landlord for approval schematics covering the Additional Improvements prepared in conformity with the applicable provisions of this Work Letter (the "Draft Schematic Plans"). The Draft Schematic Plans shall contain sufficient information and detail to accurately describe the proposed design to Landlord and such other information as Landlord may reasonably request. Landlord shall notify Tenant in writing within five (5) business days after receipt of the Draft Schematic Plans whether Landlord approves or objects to the Draft Schematic Plans and of the manner, if any, in which the Draft Schematic Plans are unacceptable. Landlord's failure to respond within such five (5) business day period shall be deemed approval by Landlord. If Landlord reasonably objects to the Draft Schematic Plans, then Tenant shall revise the Draft Schematic Plans and cause Landlord's objections to be remedied in the revised Draft Schematic Plans. Tenant shall then resubmit the revised Draft Schematic Plans to Landlord for approval, such approval not to be unreasonably withheld, conditioned or delayed. Landlord's approval of or objection to revised Draft Schematic Plans and Tenant's correction of the same shall be in accordance with this Section 2.1 until Landlord has approved the Draft Schematic Plans in writing or been deemed to have approved them. The iteration of the Draft Schematic Plans that is approved or deemed approved by Landlord without objection shall be referred to herein as the "Approved Schematic Plans."

2.2. Construction Plans. Tenant shall prepare final plans and specifications for the Additional Improvements that (a) are consistent with and are logical evolutions of the Approved Schematic Plans and (b) incorporate any other Tenant-requested (and Landlord-approved) Changes (as defined below). As soon as such final plans and specifications ("Construction Plans") are completed, Tenant shall deliver the same to Landlord for Landlord's approval, which approval shall not be unreasonably withheld, conditioned or delayed. All such Construction Plans shall be submitted by Tenant to Landlord in electronic .pdf, CADD and full-size hard copy formats, and shall be approved or disapproved by Landlord within five (5) business days after delivery to Landlord. Landlord's failure to respond within such five (5) business day period shall be deemed approval by Landlord. If the Construction Plans are disapproved by Landlord, then Landlord shall notify Tenant in writing of its objections to such Construction Plans, and the parties shall confer and negotiate in good faith to reach agreement on the Construction Plans. Promptly after the Construction Plans are approved by Landlord and Tenant, two (2) copies of such Construction Plans shall be initialed and dated by Landlord and Tenant, and Tenant shall promptly submit such Construction Plans to all appropriate Governmental Authorities for approval. The Construction Plans so approved, and all change orders specifically permitted by this Work Letter, are referred to herein as the "Approved Plans."

2.3. Changes to the Additional Improvements. Any changes to the Approved Plans (each, a "Change") shall be requested and instituted in accordance with the provisions of this Article 2 and shall be subject to the written approval of the non-requesting party in accordance with this Work Letter.

(a) Change Request. Either Landlord or Tenant may request Changes after Landlord approves the Approved Plans by notifying the other party thereof in writing in substantially the same form as the AIA standard change order form (a "Change Request"), which Change Request shall detail the nature and extent of any requested Changes, including (a) the Change, (b) the party required to perform the Change and (c) any modification of the Approved Plans and the Schedule, as applicable, necessitated by the Change. If the nature of a Change requires revisions to the Approved Plans, then the requesting party shall be solely responsible for the cost and expense of such revisions and any increases in the cost of the Additional Improvements as a result of such Change. Change Requests shall be signed by the requesting party's Authorized Representative.

(b) Approval of Changes. All Change Requests shall be subject to the other party's prior written approval, which approval shall not be unreasonably withheld, conditioned or delayed. The non-requesting party shall have five (5) business days after receipt of a Change Request to notify the requesting party in writing of the non-requesting party's decision either to approve or object to the Change Request. The non-requesting party's failure to respond within such five (5) business day period shall be deemed approval by the non-requesting party.

2.4. Preparation of Estimates. Tenant shall, before proceeding with any Change, using its best efforts, prepare as soon as is reasonably practicable (but in no event more than five (5) business days after delivering a Change Request to Landlord or receipt of a Change Request) an estimate of the increased costs or savings that would result from such Change, as well as an estimate of such Change's effects on the Schedule. Landlord shall have five (5) business days after receipt of such information from Tenant to (a) in the case of a Tenant-initiated Change Request, approve or reject such Change Request in writing, or (b) in the case of a Landlord-initiated Change Request, notify Tenant in writing of Landlord's decision either to proceed with or abandon the Landlord-initiated Change Request.

2.5. Quality Control Program; Coordination. Tenant shall provide Landlord with information regarding the following (together, the "QCP"): (a) Tenant's general contractor's quality control program and (b) evidence of subsequent monitoring and action plans. The QCP shall be subject to Landlord's reasonable review and approval and shall specifically address the Additional Improvements. Tenant shall ensure that the QCP is regularly implemented on a scheduled basis and shall provide Landlord with reasonable prior notice and access to attend all inspections and meetings between Tenant and its general contractor. At the conclusion of the Additional Improvements, Tenant shall deliver the quality control log to Landlord, which shall include all records of quality control meetings and testing and of inspections held in the field, including inspections relating to concrete, steel roofing, piping pressure testing and system commissioning.

3. Completion of Additional Improvements. Tenant, at its sole cost and expense (except for the Additional Premises Base TI Allowance and, if properly requested by Tenant pursuant to the terms of the Amendment, the Additional Premises Additional TI Allowance), shall perform and complete the Additional Improvements in all respects (a) in substantial conformance with the Approved Plans, (b) otherwise in compliance with provisions of this Work Letter and (c) in accordance with Applicable Laws, the requirements of Tenant's insurance carriers, the commercially reasonable requirements of Landlord's insurance carriers (to the extent Landlord provides its insurance carriers' requirements to Tenant) and the board of fire underwriters having

jurisdiction over the Additional Premises. The Additional Improvements shall be deemed completed at such time as Tenant shall furnish to Landlord (t) evidence that (i) all Additional Improvements have been completed and paid for in full (which shall be evidenced by the architect's certificate of completion and the general contractor's and each subcontractor's and material supplier's final unconditional waivers and releases of liens, each in a form complying with Applicable Laws, and a Certificate of Substantial Completion in the form of the American Institute of Architects document G704, executed by the project architect and the general contractor, together with a statutory notice of substantial completion from the general contractor), (ii) any and all liens related to the Additional Improvements have either been discharged of record (by payment, bond, order of a court of competent jurisdiction or otherwise) or waived by the party filing such lien and (iii) no security interests relating to the Additional Improvements are outstanding, (u) all certifications and approvals with respect to the Additional Improvements that may be required from any Governmental Authority and any board of fire underwriters or similar body for the use and occupancy of the Additional Premises (including a (temporary) certificate of occupancy (or its substantial equivalent) for the Additional Premises for the Permitted Use), (v) certificates of insurance required by the Lease to be purchased and maintained by Tenant, (w) an affidavit from Tenant's architect certifying that all work performed in, on or about the Additional Premises is in accordance with the Approved Plans, (x) complete "as built" drawing print sets, project specifications and shop drawings and electronic CADD files on disc (showing the Additional Improvements as an overlay on the Building "as built" plans (provided that Landlord provides the Building "as-built" plans to Tenant)) for work performed by their architect and engineers in relation to the Additional Improvements, (y) a commissioning report prepared by a licensed, qualified commissioning agent hired by Tenant and approved by Landlord for all new or affected mechanical, electrical and plumbing systems (which report Landlord may hire a licensed, qualified commissioning agent to peer review, and whose reasonable recommendations Tenant's commissioning agent shall perform and incorporate into a revised report) and (z) such other "close out" materials as Landlord reasonably requests consistent with Landlord's own requirements for its contractors, such as copies of manufacturers' warranties, operation and maintenance manuals and the like.

4. Insurance.

4.1. Property Insurance. At all times during the period beginning with commencement of construction of the Additional Improvements and ending with final completion of the Additional Improvements, Tenant shall maintain, or cause to be maintained (in addition to the insurance required of Tenant pursuant to the Lease), property insurance insuring Landlord and the Landlord Parties, as their interests may appear. Such policy shall, on a completed replacement cost basis for the full insurable value at all times, insure against loss or damage by fire, vandalism and malicious mischief and other such risks as are customarily covered by the so-called "broad form extended coverage endorsement" upon all Additional Improvements and the general contractor's and any subcontractors' machinery, tools and equipment, all while each forms a part of, or is contained in, the Additional Improvements or any temporary structures on the Additional Premises, or is adjacent thereto; provided that, for the avoidance of doubt, insurance coverage with respect to the general contractor's and any subcontractors' machinery, tools and equipment shall be carried on a primary basis by such general contractor or the applicable subcontractor(s). Tenant agrees to pay any deductible, and Landlord is not responsible for any deductible, for a claim under such insurance.

4.2. Workers' Compensation Insurance. At all times during the period of construction of the Additional Improvements, Tenant shall, or shall cause its contractors or subcontractors to, maintain statutory workers' compensation insurance as required by Applicable Laws.

4.3. Waivers of Subrogation. Any insurance provided pursuant to this Article 4 shall waive subrogation against the Landlord Parties and Tenant shall hold harmless and indemnify the Landlord Parties for any loss or expense incurred as a result of a failure to obtain such waivers of subrogation from insurers.

4.4. Additional Insurance. During the construction of the Additional Improvements, Tenant shall, at its own cost and expense, procure the insurance required in Exhibit B-1 of the Existing Lease for the benefit of Tenant and Landlord (as their interests may appear) with insurers financially acceptable and lawfully authorized to do business in the California.

5. Liability. Tenant assumes sole responsibility and liability for any and all injuries or the death of any persons, including Tenant's contractors and subcontractors and their respective employees, agents and invitees, and for any and all damages to property arising from any act or omission on the part of Tenant, Tenant's contractors or subcontractors, or their respective employees, agents and invitees in the prosecution of the Additional Improvements. Tenant agrees to Indemnify the Landlord Indemnitees from and against all Claims due to, because of or arising from any and all such injuries, death or damage, whether real or alleged, and Tenant and Tenant's contractors and subcontractors shall assume and defend at their sole cost and expense all such Claims; provided, however, that nothing contained in this Work Letter shall be deemed to Indemnify Landlord from or against liability to the extent arising directly from Landlord's negligence or willful misconduct. Any deficiency in design or construction of the Additional Improvements shall be solely the responsibility of Tenant, notwithstanding the fact that Landlord may have approved of the same in writing.

6. TI Allowance.

6.1. Application of TI Allowance. Landlord shall contribute, in the following order, the Additional Premises Base TI Allowance and, if properly requested by Tenant pursuant to the terms of the Amendment, the Additional Premises Additional TI Allowance toward the costs and expenses incurred in connection with the performance of the Additional Improvements, in accordance with Section 5 of the Amendment. If the entire TI Allowance is not applied toward or reserved for the costs of the Additional Improvements, then Tenant shall not be entitled to a credit of such unused portion of the Additional Premises TI Allowance. Tenant may apply the Additional Premises Base TI Allowance and, if properly requested by Tenant pursuant to the terms of the Amendment, the Additional Premises Additional TI Allowance for the payment of construction and other costs in accordance with the terms and provisions of the Lease.

6.2. Approval of Budget for the Additional Improvements. Notwithstanding anything to the contrary set forth elsewhere in this Work Letter or the Lease, Landlord shall not have any obligation to expend any portion of the Additional Premises TI Allowance until Landlord and Tenant shall have approved in writing the budget for the Additional Improvements (the "Approved Budget"). Prior to Landlord's approval of the Approved Budget, Tenant shall pay all of the costs and expenses incurred in connection with the Additional Improvements as they become due (which shall be reimbursed by Landlord upon such approval of the Approved Budget, subject to the Tenant's satisfaction of the other conditions under the Amendment and this Work Letter for Landlord's disbursement of the Additional Premises TI Allowance to Tenant). Landlord shall not be obligated to reimburse Tenant for costs or expenses relating to the Additional Improvements that exceed the amount of the Additional Premises TI Allowance. Landlord shall not unreasonably withhold, condition or delay its approval of any budget for the Additional Improvements that is proposed by Tenant, and Landlord's approval of any budget for the Additional Improvements shall be limited to approving whether the costs set forth in such budget are commercially competitive.

6.3. Fund Requests. Upon submission by Tenant to Landlord as of or prior to the Additional Premises TI Deadline of (a) a statement (a "Fund Request") setting forth the total amount of the Additional Premises TI Allowance requested, (b) a summary of the Additional Improvements performed using AIA standard form Application for Payment (G 702) executed by the general contractor and by the architect, (c) invoices from the general contractor, the architect, and any subcontractors, material suppliers and other parties requesting payment with respect to the amount of the Additional Premises TI Allowance then being requested, (d) unconditional lien releases from the general contractor and each subcontractor and material supplier with respect to previous payments made by either Landlord or Tenant for the Additional Improvements in a form acceptable to Landlord and complying with Applicable Laws and (e) conditional lien releases from the general contractor and each subcontractor and material supplier with respect to the Additional Improvements performed that correspond to the Fund Request each in a form acceptable to Landlord and complying with Applicable Laws, then Landlord shall, within thirty (30) days following receipt by Landlord of a Fund Request and the accompanying materials required by this Section 6.3, pay to the applicable contractors, subcontractors and material suppliers or Tenant (for reimbursement for payments made by Tenant to such contractors, subcontractors or material suppliers either prior to Landlord's approval of the Approved TI Budget or as a result of Tenant's decision to pay for the Additional Improvements itself and later seek reimbursement from Landlord in the form of one lump sum payment in accordance with the Amendment and this Work Letter), the amount of Additional Improvement costs set forth in such Fund Request or Landlord's pari passu share thereof if Excess TI Costs exist based on the Approved Budget; provided, however, that Landlord shall not be obligated to make any payments under this Section 6.3 until the budget for the Additional Improvements is approved in accordance with Section 6.2, and any Fund Request under this Section 6.2 shall be submitted as of or prior to the Additional Premises TI Deadline and shall be subject to the payment limits set forth in Section 6.2 above and Section 5 of the Amendment. Notwithstanding anything in this Section 6.3 to the contrary, Tenant shall not submit a Fund Request after the Additional Premises TI Deadline or more often than every thirty (30) days. Any additional Fund Requests submitted by Tenant after the Additional Premises TI Deadline or more often than every thirty (30) days shall be void and of no force or effect.

6.4. Accrual Information. In addition to the other requirements of this Section 6, Tenant shall, no later than the second (2nd) business day of each month until the Additional Improvements are complete, provide Landlord with an estimate of (a) the percentage of design and other soft cost work that has been completed, (b) design and other soft costs spent through the end of the previous month, both from commencement of the Additional Improvements and solely for the previous month, (c) the percentage of construction and other hard cost work that has been completed, (d) construction and other hard costs spent through the end of the previous month, both from commencement of the Additional Improvements and solely for the previous month, and (e) the date of substantial completion of the Additional Improvements.

7. Miscellaneous.

7.1. Incorporation of Existing Lease Provisions. Sections 40.6 through 40.19 of the Existing Lease are incorporated into this Work Letter by reference, and shall apply to this Work Letter in the same way that they apply to the Lease.

7.2. General. Except as otherwise set forth in the Lease or this Work Letter, this Work Letter shall not apply to improvements performed in any additional premises added to the Premises at any time or from time to time, whether by any options under the Lease or otherwise; or to any portion of the Premises or any additions to the Premises in the event of a renewal or extension of the original Term, whether by any options under the Lease or otherwise, unless the Lease or any amendment or supplement to the Lease expressly provides that such additional premises are to be delivered to Tenant in the same condition as the initial Premises.

7.3. Restoration. Tenant shall have no requirement to restore or remove the Additional Improvements from the Additional Premises upon the expiration or earlier termination of the Lease except that if and to the extent that the Additional Improvements include work that materially deviates from the "test fit" previously furnished by Tenant to Landlord and attached hereto as Schedule 1 ("Test Fit"), then Landlord may at its election, by so notifying Tenant at the time Landlord approves such portion of the Additional Improvements, require Tenant to restore and/or remove such portion of the Additional Improvements upon the expiration or earlier termination of the Lease.

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IN WITNESS WHEREOF, Landlord and Tenant have executed this Work Letter to be effective on the date first above written.

**LANDLORD:**

BMR-9360-9390 TOWNE CENTRE LP,
a Delaware limited partnership

By: /s/ Marie Lewis
Name: Marie Lewis
Title: Vice President, Legal

**TENANT:**

POSEIDA THERAPEUTICS, INC.,
a Delaware corporation

By: /s/ Mark Gergen
Name: Mark Gergen
Title: CFO - CBO

**SCHEDULE 1 TO EXHIBIT B**

**TEST FIT**

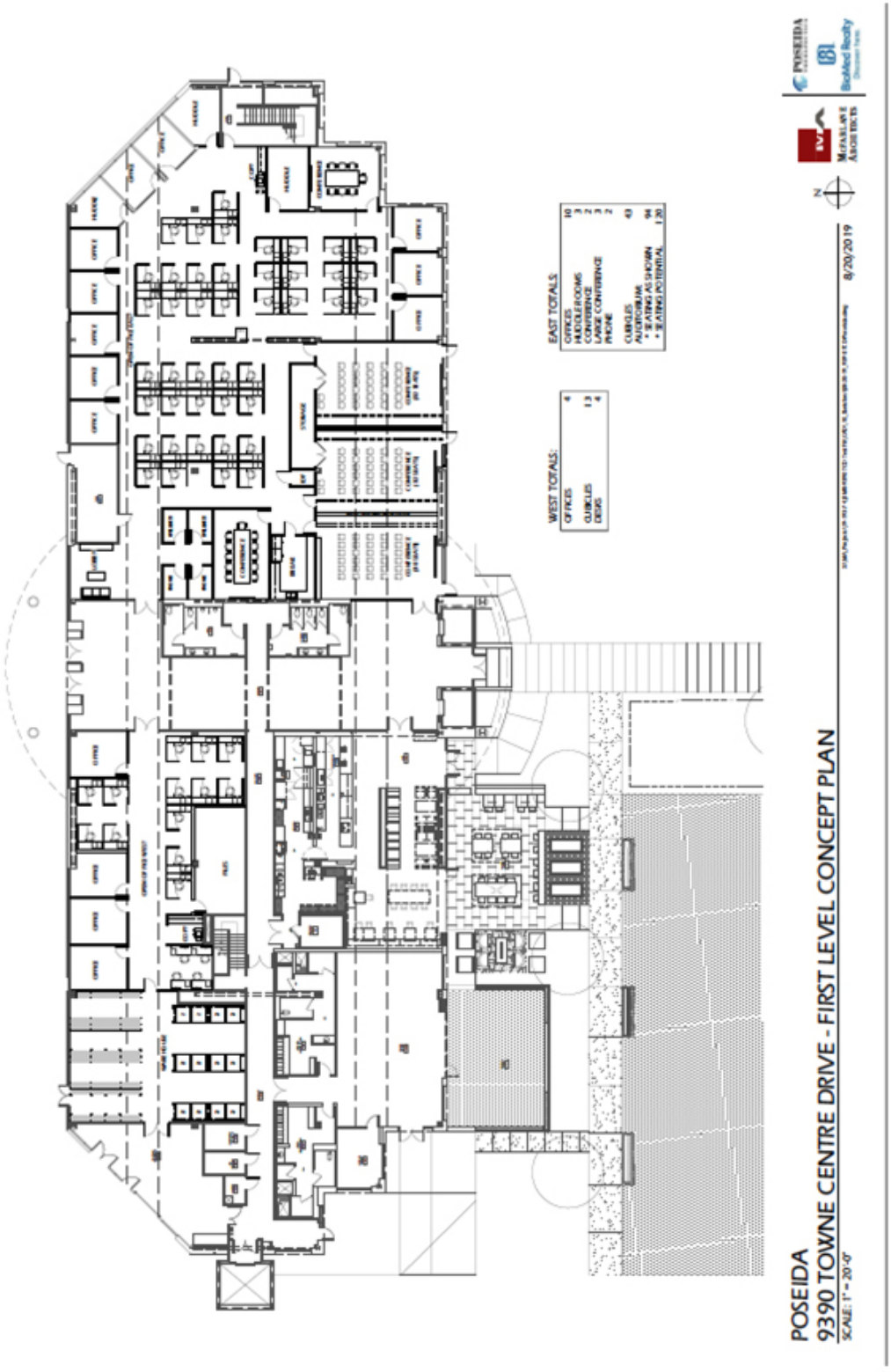


**EXHIBIT C**

**ACKNOWLEDGMENT OF ADDITIONAL PREMISES TERM COMMENCEMENT DATE**

THIS ACKNOWLEDGEMENT OF ADDITIONAL PREMISES TERM COMMENCEMENT DATE is entered into as of [_____], 20____, with reference to that certain First Amendment to Lease (the "Amendment") dated as of [_____], 2019, by POSEIDA THERAPEUTICS, INC., a Delaware corporation ("Tenant"), in favor of BMR-9360-9390 TOWNE CENTRE LP, a Delaware limited partnership ("Landlord"). All capitalized terms used herein without definition shall have the meanings ascribed to them in the Lease.

Tenant hereby confirms the following:

1. Tenant accepted possession of the Additional Premises for construction of improvements on [_____], 20[__]. Tenant first occupied the Additional Premises for the Permitted Use on [_____], 20[__].

2. The Additional Premises Term Commencement Date is [_____], 20___, and, unless the Lease is terminated prior to the Term Expiration Date pursuant to its terms, the Term Expiration Date shall be December 31, 2029.

3. The obligation to pay Rent is presently in effect and all Rent obligations on the part of Tenant under the Lease with respect to the Additional Premises commenced to accrue on [_____], 20[__], with Base Rent for the Additional Premises payable on the dates and amounts set forth in the chart below, subject to abatement as set forth in the Amendment:

| Dates | Approximate Square Feet of Rentable Area* | Base Rent per Square Foot of Rentable Area | Monthly Base Rent* | Annual Base Rent* |
|---|---|---|---|---|
| [__]/[__]/[__]-[__]/[__]/[__] | [ ] | $[_____] monthly | [ ] | [ ] |

IN WITNESS WHEREOF, Tenant has executed this Acknowledgment of Additional Premises Term Commencement Date as of the date first written above.

TENANT:

POSEIDA THERAPEUTICS, INC.,
a Delaware corporation

By: _____
Name:
Title:

**EXHIBIT D**

**FORM OF ADDITIONAL TI ALLOWANCE(S) ACCEPTANCE LETTER**

[TENANT LETTERHEAD]

BMR-9360-9390 Towne Centre LP
17190 Bernardo Center Drive
San Diego, California 92128
Attn: Legal Department

[Date]

Re: Additional TI Allowance(s)

To Whom It May Concern:

This letter concerns that certain First Amendment to Lease dated as of [_____], 20____ (the "Amendment"), between BMR-9360-9390 Towne Centre LP ("Landlord") and Poseida Therapeutics, Inc. ("Tenant"). Capitalized terms not otherwise defined herein shall have the meanings given them in the Amendment.

Tenant hereby notifies Landlord that it wishes to exercise its right to utilize the Additional Premises Additional TI Allowance(s) pursuant to Section 5 of the Amendment.

If you have any questions, please do not hesitate to call [_____] at ([___]) [___]-[____].

Sincerely,

[Name]
[Title of Authorized Signatory]

cc: Karen Sztraicher
Jon Bergschneider
John Lu
Kevin Simonsen

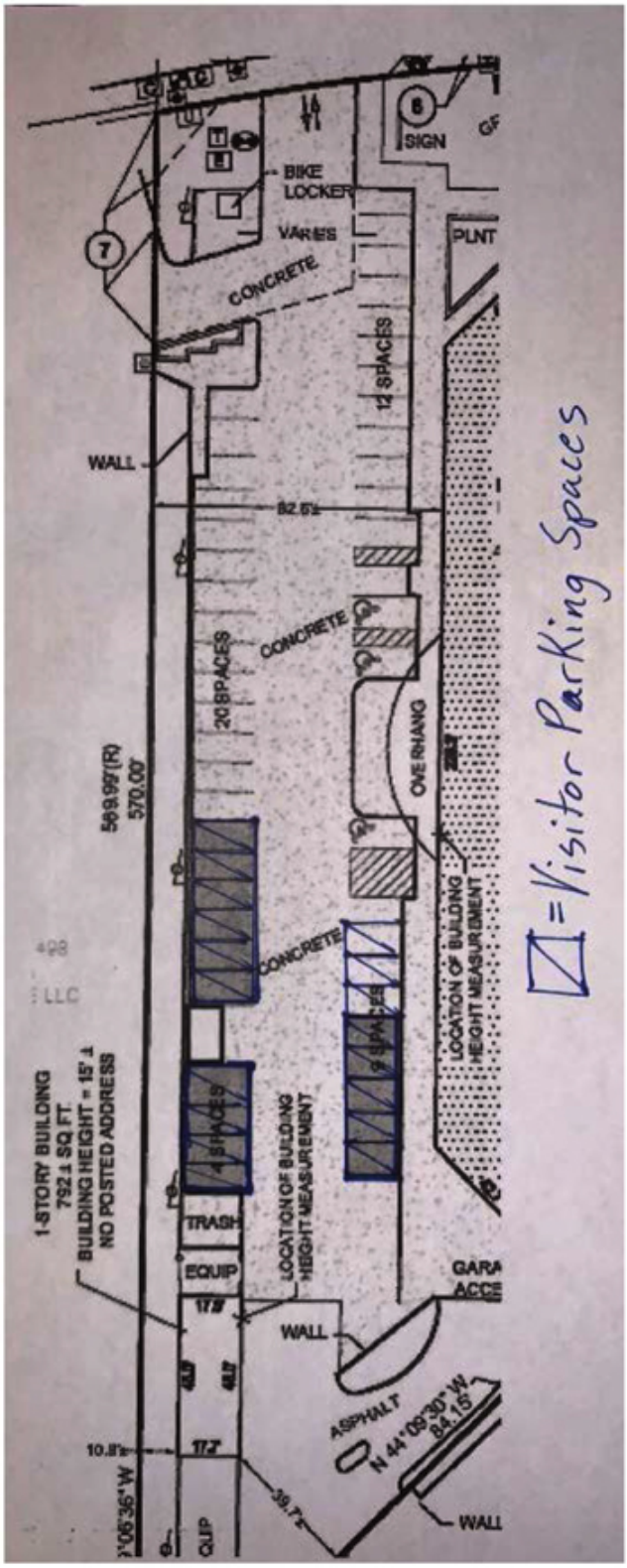
**EXHIBIT E**

**DESCRIPTION OF THE LANDLORD WORK**

Landlord shall demolish the shaft indicated on the diagram below using Building-standard materials and in Landlord's Building-standard manner.

**EXHIBIT G**

**LOCATION OF VISITOR PARKING SPACES**



**SECOND AMENDMENT TO LEASE**

THIS SECOND AMENDMENT TO LEASE (this "Amendment") is entered into as of this 11 day of March, 2020 (the "Second Amendment Execution Date"), by and between BRE-BMR CAMPUS AT TOWNE CENTRE LP, a Delaware limited partnership ("Landlord," as successor-in-interest to BMR-9360-9390 Towne Centre LP), and POSEIDA THERAPEUTICS, INC., a Delaware corporation ("Tenant").

**RECITALS**

A. WHEREAS, Landlord and Tenant are parties to that certain Lease dated as of October 1, 2018, as amended by that certain First Amendment to Lease dated as of October 4, 2019 (the "First Amendment") (collectively, and as the same may have been further amended, amended and restated, supplemented or modified from time to time, the "Existing Lease"), whereby Tenant leases certain premises (the "Existing Premises") from Landlord at 9390 Towne Centre Drive in San Diego, California (the "Building");

B. WHEREAS, Landlord and Tenant desire to modify certain terms of the First Amendment; and

C. WHEREAS, Landlord and Tenant desire to modify and amend the Existing Lease only in the respects and on the conditions hereinafter stated.

**AGREEMENT**

NOW, THEREFORE, Landlord and Tenant, in consideration of the mutual promises contained herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and intending to be legally bound, agree as follows:

1. Definitions. For purposes of this Amendment, capitalized terms shall have the meanings ascribed to them in the Existing Lease unless otherwise defined herein. The Existing Lease, as amended by this Amendment, is referred to collectively herein as the "Lease." From and after the date hereof, the term "Lease," as used in the Existing Lease, shall mean the Existing Lease, as amended by this Amendment.

2. Recital B. Effective as of the Second Amendment Execution Date, Recital B of the First Amendment is hereby amended by replacing the term "fifteen thousand one hundred forty-six (15,146)" with the term "fifteen thousand two hundred twenty-five (15,225)."

3. Exhibit A. Effective as of the Second Amendment Execution Date, Exhibit A attached to the First Amendment is hereby deleted in its entirety and replaced with the Exhibit A attached to this Amendment.

4. Tenant's Pro Rata Shares. Effective as of the Second Amendment Execution Date, the chart in Section 7 of the First Amendment is hereby deleted in its entirety and replaced with the following:

| Definition or Provision | Means the Following (As of the Additional Premises Term Commencement Date) |
|---|---|
| Approximate Rentable Area of Premises* | 68,335 square feet |
| Approximate Rentable Area of Building* | 74,360 square feet |
| Approximate Rentable Area of Project* | 163,070 square feet |
| Tenant's Pro Rata Share of Building* | 91.90% |
| Tenant's Pro Rata Share of Project* | 41.91% |

* Upon the Amenities Facilities Opening Date (as defined in Section 45 of the Existing Lease), the Rentable Area of the entire Premises, the Building and the Project, as well as Tenant's Pro Rata Share of the Project and Tenant's Pro Rata Share of the Building shall increase as provided in Section 45 of the Existing Lease.

5. Additional Premises TI Allowance. Notwithstanding anything to the contrary in this Amendment, (a) the amount of (i) the Additional Premises Base TI Allowance, (ii) the Additional Premises Additional TI Allowance and (iii) any Additional Premises Additional TI Allowance Installment, shall continue to be based on the Rentable Area of the Additional Premises as set forth in the First Amendment (i.e., such amounts shall not increase as a result of the increase in Rentable Area of the Additional Premises set forth in this Amendment), and (b) any increase in the monthly Base Rent rate (per square foot of Rentable Area) with respect to the Additional Premises due to any Additional Premises Additional TI Allowance Installment disbursed by Landlord pursuant to Section 5.4 of the First Amendment shall apply to the entire Additional Premises, including (without limitation) the additional Rentable Area added to the Additional Premises in this Amendment.

6. Broker. Tenant represents and warrants that it has not dealt with any broker or agent in the negotiation for or the obtaining of this Amendment, other than Cushman & Wakefield of San Diego, Inc. ("Broker"), and agrees to reimburse, indemnify, save, defend (at Landlord's option and with counsel reasonably acceptable to Landlord, at Tenant's sole cost and expense) and hold harmless the Landlord Indemnitees for, from and against any and all cost or liability for compensation claimed by any such broker or agent, other than Broker, employed or engaged by it or claiming to have been employed or engaged by it.

7. No Default. Tenant represents, warrants and covenants that, to the best of Tenant's knowledge, Landlord and Tenant are not in default of any of their respective obligations under the Existing Lease and no event has occurred that, with the passage of time or the giving of notice (or both) would constitute a default by either Landlord or Tenant thereunder.

8. Effect of Amendment. Except as modified by this Amendment, the Existing Lease and all the covenants, agreements, terms, provisions and conditions thereof shall remain in full force and effect and are hereby ratified and affirmed. In the event of any conflict between the terms contained in this Amendment and the Existing Lease, the terms herein contained shall supersede and control the obligations arid liabilities of the parties.

9. Successors and Assigns. Each of the covenants, conditions and agreements contained in this Amendment shall inure to the benefit of and shall apply to and be binding upon the parties hereto and their respective heirs, legatees, devisees, executors, administrators and permitted successors and assigns and sublessees. Nothing in this section shall in any way alter the provisions of the Lease restricting assignment or subletting.

10. Miscellaneous. This Amendment becomes effective only upon execution and delivery hereof by Landlord and Tenant. The captions of the paragraphs and subparagraphs in this Amendment are inserted and included solely for convenience and shall not be considered or given any effect in construing the provisions hereof. All exhibits hereto are incorporated herein by reference. Submission of this instrument for examination or signature by Tenant does not constitute a reservation of or option for a lease, and shall not be effective as a lease, lease amendment or otherwise until execution by and delivery to both Landlord and Tenant.

11. Authority. Tenant guarantees, warrants and represents that the individual or individuals signing this Amendment have the power, authority and legal capacity to sign this Amendment on behalf of and to bind all entities, corporations, partnerships, limited liability companies, joint venturers or other organizations and entities on whose behalf such individual or individuals have signed.

12. Counterparts: Facsimile and PDF Signatures. This Amendment may be executed in one or more counterparts, each of which, when taken together, shall constitute one and the same document. A facsimile or portable document format (PDF) signature on this Amendment shall be equivalent to, and have the same force and effect as, an original signature.

[REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, Landlord and Tenant have executed this Amendment as of the date and year first above written.

**LANDLORD:**

BRE-BMR CAMPUS AT TOWNE CENTRE LP,
a Delaware limited partnership

By: /s/ Kevin Tremblay
Name: Kevin Tremblay
Title: Vice President, Leasing

**TENANT:**

POSEIDA THERAPEUTICS, INC.,
a Delaware corporation

By: /s/ Mark Gergen
Name: Mark Gergen
Title: CFO & CBO

**EXHIBIT A**

**ADDITIONAL PREMISES**

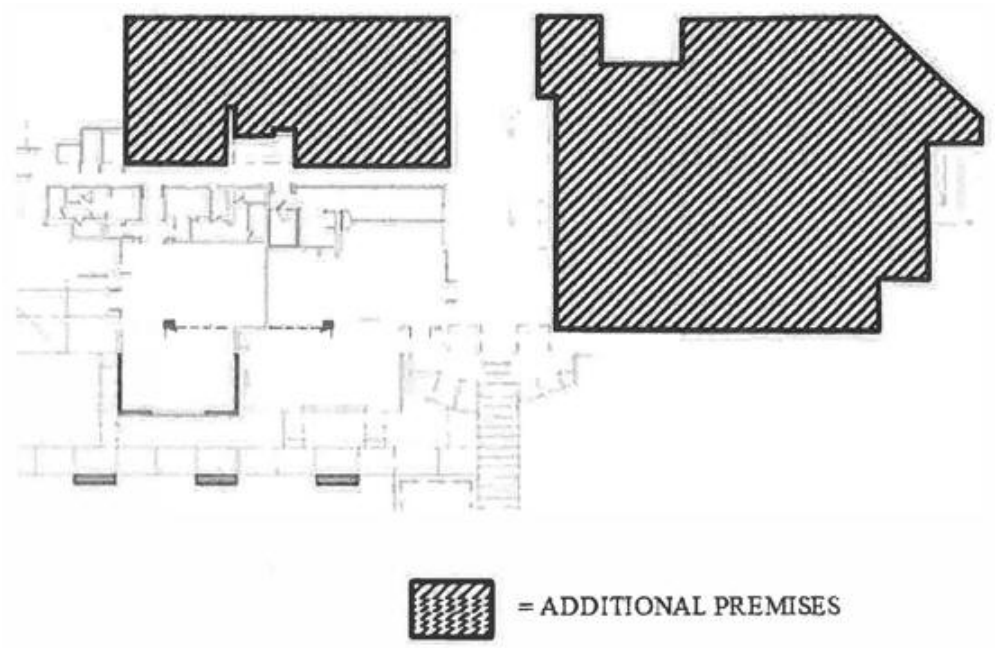



EXHIBIT A