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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-Q

(Mark One)

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended June 30, 2024

or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from _____ to _____

Commission File Number: 001-39376

Poseida Therapeutics, Inc.

(Exact Name of Registrant as Specified in its Charter)

Delaware	**47-2846548**
(State or Other Jurisdiction of Incorporation or Organization)	**(I.R.S. Employer Identification No.)**
9390 Towne Centre Drive, Suite 200, San Diego, California	**92121**
(Address of Principal Executive Offices)	**(Zip Code)**

(858) 779-3100

(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.0001 per share	PSTX	Nasdaq Global Select Market

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

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 elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

As of July 30, 2024, the registrant had 97,120,175 shares of common stock, $0.0001 par value per share, outstanding.

POSEIDA THERAPEUTICS, INC.

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q contains forward-looking statements about us and our industry that involve substantial risks and uncertainties. All statements other than statements of historical facts contained in this Quarterly Report on Form 10-Q including statements regarding our future results of operations or financial condition, business strategy, plans and objectives of management for future operations, are forward-looking statements. In some cases, you can identify forward-looking statements because they contain words such as "anticipate," "believe," "contemplate," "continue," "could," "estimate," "expect," "intend," "may," "plan," "potential," "predict," "project," "should," "target," "will" or "would" or the negative of these words or other similar terms or expressions. These forward-looking statements include, but are not limited to, statements concerning the following:

- 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 manufacturing capabilities and plans, including the operation of our clinical manufacturing facility;
- the performance of our third-party suppliers and manufacturers;
- our ability to attract and/or retain new and existing collaborators with development, regulatory, manufacturing and commercialization expertise and our expectations regarding the potential benefits to be derived from such collaborations;
- 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;
- acts of terrorism, war and global conflicts, such as the Russia and Ukraine conflict, and the conflict in the Middle East, and the potential impact they may have on supply chains, the availability, and prices, of commodities, inflationary pressure and the overall U.S. and global financial markets;
- financial conditions within the banking industry, liquidity levels, and responses by the Federal Reserve, Department of the Treasury, and the Federal Deposit Insurance Corporation to address these issues;
- future changes in or impact of law and regulations in the United States and foreign countries; and
- the sufficiency of our existing cash, cash equivalents and short-term investments to fund our operations.

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" and elsewhere in this Quarterly Report on Form 10-Q. 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 Quarterly Report on Form 10-Q 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 Quarterly Report on Form 10-Q to conform these statements to actual results or to changes in our expectations.

Unless the context otherwise indicates, references in this Quarterly Report on Form 10-Q to the terms “Poseida”, “the Company,” “we,” “our” and “us” refer to Poseida Therapeutics, Inc.

We regularly make material business and financial information available to our investors using our investor relations website (https://investors.poseida.com). We therefore encourage investors and others interested in Poseida to review the information that we make available on our website, in addition to following our filings with the Securities and Exchange Commission, or the SEC, press releases and conference calls.

PART I. FINANCIAL INFORMATION

Item 1. Financial Statements

POSEIDA THERAPEUTICS, INC.
Condensed Consolidated Balance Sheets
(In thousands, except share and par value amounts)

	June 30, 2024	December 31, 2023
Assets		
Current assets:		
Cash and cash equivalents	$ 30,545	$ 44,472
Short-term investments	207,267	167,730
Accounts receivable	12,427	9,010
Prepaid expenses and other current assets	4,097	5,263
Total current assets	254,336	226,475
Property and equipment, net	17,759	19,055
Operating lease right-of-use assets	19,962	21,726
Intangible assets, net	1,320	1,320
Goodwill	4,228	4,228
Other long-term assets	1,081	1,081
Total assets	$ 298,686	$ 273,885
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 2,990	$ 3,267
Accrued expenses and other liabilities	30,116	31,092
Operating lease liabilities, current	6,039	5,951
Deferred revenue, current	63,289	31,008
Total current liabilities	102,434	71,318
Term debt	58,796	58,590
Deferred revenue, non-current	54,924	16,780
Operating lease liabilities, non-current	18,818	20,882
Other long-term liabilities	2,897	2,614
Total liabilities	237,869	170,184
Commitments and Contingencies (Note 12)		
Stockholders' equity:		
Common stock, $0.0001 par value: 250,000,000 shares authorized at June 30, 2024 and December 31, 2023; 97,080,817 and 95,636,553 shares issued and outstanding at June 30, 2024 and December 31, 2023, respectively	10	10
Additional paid-in capital	710,825	697,856
Accumulated other comprehensive income (loss)	(82)	126
Accumulated deficit	(649,936)	(594,291)
Total stockholders' equity	60,817	103,701
Total liabilities and stockholders' equity	$ 298,686	$ 273,885

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

POSEIDA THERAPEUTICS, INC.
Condensed Consolidated Statements of Operations and Comprehensive Loss
(In thousands, except share and per share amounts)
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2024	2023	2024	2023
Revenue:				
Collaboration revenue	$ 25,973	$ 20,013	$ 54,115	$ 30,356
Total revenue	25,973	20,013	54,115	30,356
Operating expenses:				
Research and development	45,547	39,192	88,468	77,244
General and administrative	12,182	8,676	21,980	20,483
Total operating expenses	57,729	47,868	110,448	97,727
Loss from operations	(31,756)	(27,855)	(56,333)	(67,371)
Other income (expense):				
Interest expense	(2,259)	(2,141)	(4,512)	(4,169)
Other income, net	2,644	2,540	5,200	5,237
Net loss	$ (31,371)	$ (27,456)	$ (55,645)	$ (66,303)
Other comprehensive loss:				
Unrealized loss on short-term investments	(35)	(282)	(208)	(131)
Comprehensive loss	$ (31,406)	$ (27,738)	$ (55,853)	$ (66,434)
Net loss per share attributable to common stockholders, basic and diluted	$ (0.32)	$ (0.32)	$ (0.58)	$ (0.77)
Weighted-average number of shares outstanding, basic and diluted	96,965,025	86,794,697	96,492,301	86,531,422

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

POSEIDA THERAPEUTICS, INC.
Condensed Consolidated Statements of Changes in Stockholders' Equity
(In thousands, except share amounts)
(Unaudited)

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2023	95,636,553	$ 10	$ 697,856	$ 126	$ (594,291)	$ 103,701
Issuance of common stock under employee stock compensation plans, net of tax withholdings	1,161,456	—	(43)	—	—	(43)
Stock-based compensation expense	—	—	5,383	—	—	5,383
Unrealized loss on available-for-sale securities	—	—	—	(173)	—	(173)
Net loss	—	—	—	—	(24,274)	(24,274)
Balance at March 31, 2024	96,798,009	$ 10	$ 703,196	$ (47)	$ (618,565)	$ 84,594
Issuance of common stock under employee stock compensation plans, net of tax withholdings	282,808	—	—	—	—	—
Stock-based compensation expense	—	—	7,629	—	—	7,629
Unrealized loss on available-for-sale securities	—	—	—	(35)	—	(35)
Net loss	—	—	—	—	(31,371)	(31,371)
Balance at June 30, 2024	97,080,817	$ 10	$ 710,825	$ (82)	$ (649,936)	$ 60,817

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance at December 31, 2022	85,964,161	$ 9	$ 658,596	$ (149)	$ (470,861)	$ 187,595
Issuance of common stock under employee stock compensation plans, net of tax withholdings	675,726	—	258	—	—	258
Issuance of common stock through ATM, net of issuance costs	119,000	—	928	—	—	928
Stock-based compensation expense	—	—	7,480	—	—	7,480
Unrealized gain on available-for-sale securities	—	—	—	151	—	151
Net loss	—	—	—	—	(38,847)	(38,847)
Balance at March 31, 2023	86,758,887	$ 9	$ 667,262	$ 2	$ (509,708)	$ 157,565
Issuance of common stock under employee stock compensation plans, net of tax withholdings	119,454	—	—	—	—	—
Stock-based compensation expense	—	—	5,474	—	—	5,474
Unrealized loss on available-for-sale securities	—	—	—	(282)	—	(282)
Net loss	—	—	—	—	(27,456)	(27,456)
Balance at June 30, 2023	86,878,341	$ 9	$ 672,736	$ (280)	$ (537,164)	$ 135,301

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

POSEIDA THERAPEUTICS, INC.
Condensed Consolidated Statements of Cash Flows
(In thousands)
(Unaudited)

	Six Months Ended June 30,	
	2024	2023
Operating Activities:		
Net loss	$ (55,645)	$ (66,303)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization expense	2,729	2,735
Stock-based compensation	13,012	12,954
Accretion of discount on issued term debt	489	361
Accretion of discount on short-term investments, net	(3,476)	(4,244)
Changes in operating assets and liabilities:		
Accounts receivable	(3,416)	(2,818)
Prepaid expenses and other current assets	946	3,207
Operating lease right-of-use assets	1,764	1,679
Accounts payable	(277)	(131)
Accrued expenses and other liabilities	(1,260)	(4,565)
Operating lease liabilities	(1,976)	(1,823)
Deferred revenue	70,425	(12,363)
Net cash provided by (used in) operating activities	23,315	(71,311)
Investing Activities:		
Purchases of property and equipment	(1,149)	(1,968)
Purchases of short-term investments	(156,050)	(109,374)
Proceeds from maturities of short-term investments	120,000	150,000
Net cash provided by (used in) investing activities	(37,199)	38,658
Financing Activities:		
Proceeds from issuance of common stock under employee stock compensation plans	549	752
Payment of taxes related to net share settlement of equity awards	(592)	(494)
Proceeds from issuance of common stock through ATM offering, net of issuance costs	—	928
Net cash provided by (used in) financing activities	(43)	1,186
Net decrease in cash and cash equivalents	(13,927)	(31,467)
Cash and cash equivalents at beginning of period	44,472	81,378
Cash and cash equivalents at end of period	$ 30,545	$ 49,911
Non-cash operating, investing and financing activities:		
Purchases of property and equipment included in accounts payable and accrued liabilities	$ 284	$ 193
Supplemental disclosure of cash flow information:		
Interest paid	$ 4,045	$ 3,775

The accompanying notes are an integral part of these unaudited condensed 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 cell therapy and genetic medicines company advancing a new class of treatments for patients with cancer and rare diseases. The Company has discovered and is developing a broad portfolio of product candidates in a variety of indications based on its core proprietary platforms, including its non-viral piggyBac DNA Delivery System, Cas-CLOVER Site-specific Gene Editing System and nanoparticle-based gene delivery technologies.

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.

Liquidity and Capital Resources

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 and debt financings and strategic collaborations. For the six months ended June 30, 2024, the Company incurred a net loss of $55.6 million and positive cash flows from operations of $23.3 million. The Company expects it will continue to incur net losses and will incur negative cash flows from operations for at least the next several years. As of June 30, 2024, the Company had an accumulated deficit of $649.9 million.

The Company expects that its cash, cash equivalents and short-term investments as of June 30, 2024 of $237.8 million will be sufficient to fund its operations for at least the next twelve months from the date of issuance of these condensed consolidated financial statements. In the long term, the Company will need additional financing to support its continuing operations and pursue its business strategy. Until such time as the Company can generate significant revenue from product sales, if ever, it expects to finance its operations through a combination of equity offerings, debt financings, collaborations, strategic alliances, and licensing arrangements. The Company may be unable to raise additional funds or enter into such other agreements when needed on favorable terms or at all. The inability to raise capital as and when needed would have a negative impact on the Company's financial condition and its ability to pursue its business strategy. The Company will need to generate significant revenue to achieve profitability, and it may never do so.

Basis of Presentation 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 of America ("GAAP"), for interim financial information and with the instructions to Form 10-Q and Article 10 of Regulation S-X. The accompanying condensed consolidated financial statements include the accounts of Poseida Therapeutics, Inc. and its wholly owned subsidiary. All intercompany transactions and balances have been eliminated. These unaudited condensed consolidated financial statements reflect all adjustments that are, in the opinion of management, necessary to fairly state the financial position and the results of its operations and cash flows for interim periods presented. Interim-period results are not necessarily indicative of results of operations or cash flows for a full year or any subsequent interim period. The accompanying condensed consolidated financial statements should be read in conjunction with the Company's audited consolidated financial statements and notes thereto included in the Company's Annual Report on Form 10-K for the year ended December 31, 2023, as filed with the Securities and Exchange Commission ("SEC") on March 7, 2024 from which the Company derived its condensed consolidated balance sheet as of December 31, 2023. We have reclassified certain amounts previously reported in our financial statements to conform to the current presentation.

Risk and Uncertainties

Global events such as the conflict in the Middle East, Russia's invasion of Ukraine and the retaliatory measures that have been taken, or could be taken in the future, by the United States, NATO, and other countries have created global security concerns that could result in a regional conflict and otherwise have a lasting impact on regional and global economies, any or all of which could disrupt the Company's supply chain and adversely affect its ability to conduct ongoing and future clinical trials of the Company's product candidates. The extent to which any such ongoing or future conflict ultimately impacts the Company's business is highly uncertain and cannot be predicted with confidence at this time.

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 revenue, accrued expenses, research and development expenses, stock-based compensation expense and deferred tax valuation allowances. 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.

Cash, Cash Equivalents and Short-term Investments

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. Investments with a remaining maturity when purchased of greater than three months are classified as short-term investments in the consolidated balance sheet and consist primarily of U.S. Treasury and other government agency obligations. As the Company's entire investment portfolio is considered available for use in current operations, the Company classifies all investments as available-for-sale and as current assets, even though the stated maturity date may be one year or more beyond the current consolidated balance sheet date, which reflects management's intention to use the proceeds from sales of these securities to fund its operations, as necessary.

Concentration of Business Risk

The Company operates in one reportable business segment and has two customers. 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.

Concentration of Credit Risk

Financial instruments, which potentially subject the Company to a significant concentration of credit risk, consist primarily of cash and cash equivalents and short-term investments. The Company maintains deposits in federally insured financial institutions in excess of federally insured limits. The Company has not experienced any losses in such accounts and management believes that the Company is not exposed to significant credit risk due to the financial position of the depository institutions in which those deposits and investments are held. The Company invests exclusively in securities issued by the U.S. government or U.S. government agencies, or in money-market funds. The Company maintains an investment policy with investment objectives to preserve principal, achieve liquidity requirements, and safeguard funds. For these reasons, management believes that the Company is not exposed to significant credit risk.

Revenue Recognition

The Company's revenues to date have been generated primarily through collaboration and license agreements. The Company's collaboration and license agreements may contain multiple elements including intellectual property licenses and research, and development services. Consideration the Company receives under these arrangements may include upfront payments, research and development funding, cost reimbursements, research, development, regulatory and commercial milestone payments, and royalty payments.

The Company applies Accounting Standard Codification Topic 606, *Revenue from Contracts with Customers* ("ASC 606"), issued by the Financial Accounting Standards Board ("FASB") to account for its contracts with customers. Under ASC 606, revenue is recognized when a customer obtains control of promised goods or services. The amount of revenue recognized reflects the consideration that the Company expects to be entitled to receive in exchange for these services. The Company analyzes the nature of these performance obligations in the context of individual collaboration and license agreements in order to assess the distinct performance obligations. The Company evaluates its contracts with customers for proper classification in the consolidated statements of operations and comprehensive loss based on the nature of the underlying activity. Transactions with customers recorded in the Company's consolidated statements of operations and comprehensive loss are recorded on either a gross or net basis, depending on the characteristics of the collaborative relationship.

To determine revenue recognition for arrangements within the scope of ASC 606, the Company performs the following five steps: (i) identify the contract with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price, including variable consideration, if any; (iv) allocate the transaction price to the performance obligations in the contract; and (v)

recognize revenue when (or as) the entity satisfies a performance obligation. The Company only applies the five-step model to contracts when it is probable that it will collect the consideration to which it is entitled in exchange for the goods or services it transfers to the customer. The Company allocates the transaction price to individual performance obligations on their relative standalone selling price basis. Standalone selling prices are based on observable prices at which the Company separately sells the products or services. If a standalone selling price is not directly observable, then the Company estimates the standalone selling price considering market conditions and entity-specific factors including, but not limited to, features and functionality of the products and services.

For each agreement entered into, including licenses granted upon the exercise of license options, the Company determines the contract term for purposes of applying the requirements of ASC 606. Generally, the Company's agreements are terminable at the option of the licensee with advance notice. The Company evaluates these termination rights to determine the contract term and whether a substantive termination penalty would be incurred by the licensee upon termination. If the licensee incurs a substantive termination penalty upon termination, the contract term for revenue recognition purposes is generally equal to the stated term of the agreement, which many times is equal to the research term. Alternatively, if the licensee does not incur a substantive termination penalty upon termination, the contract term for revenue recognition purposes may be shorter than the stated term of the agreement, in which case the termination rights may be accounted for as contract renewal options. The determination of whether a substantive termination penalty is associated with the termination rights requires significant judgment. In making this determination, the Company considers, among other things, the nature of the rights that would be returned to the Company upon termination, exclusivity rights, stage of development of the licensed products, payment terms, including the amount and timing of non-refundable or guaranteed payments, and the business purpose of the termination rights granted.

If the customer options are determined to represent a material right, the material right is recognized as a separate performance obligation at the outset of the arrangement. The Company allocates the transaction price to material rights based on the standalone selling price. As a practical alternative to estimating the standalone selling price when the goods or services are both (i) similar to the original goods and services in the contract and (ii) provided in accordance with the terms of the original contract, the Company allocates the total amount of consideration expected to be received from the customer to the total goods or services expected to be provided to the customer.

The Company receives payments from its collaborators based on terms established in each contract. Upfront payments and other payments may require deferral of revenue recognition to a future period until the Company satisfies its performance obligations under the contract.

Comprehensive Loss

Comprehensive loss is defined as the change in equity during a period from transactions and other events and circumstances from non-owner sources, including unrealized gains and losses on short-term investments. Comprehensive gains (losses) have been reflected in the unaudited condensed consolidated statements of operations and comprehensive loss for all periods presented.

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 condensed consolidated financial statements

may not be comparable to companies that comply with the new or revised accounting pronouncements as of public company effective dates.

Note 3. Composition of Certain Balance Sheet Components

Property and equipment, net

Property and equipment, net consisted of the following (in thousands):

	June 30, 2024	December 31, 2023
Laboratory equipment	$ 22,589	$ 21,271
Leasehold improvements	14,172	14,113
Computer equipment and software	1,355	1,355
Furniture and fixtures	1,181	1,125
Total property and equipment	39,297	37,864
Less: Accumulated depreciation and amortization	(21,538)	(18,809)
Total property and equipment, net	$ 17,759	$ 19,055

Depreciation and amortization expense associated with property and equipment was $1.3 million and $2.7 million for the three and six months ended June 30, 2024, respectively, and $1.4 million and $2.7 million for the three and six months ended June 30, 2023, respectively.

Accrued expenses and other liabilities

Accrued expenses and other liabilities consisted of the following (in thousands):

	June 30, 2024	December 31, 2023
Contract research services	$ 17,941	$ 14,621
Payroll and related expense	7,876	13,076
Other	4,299	3,395
Total accrued expenses and other liabilities	$ 30,116	$ 31,092

Note 4. Financial Instruments

The following table summarizes the amortized cost and fair value of available-for-sale securities (in thousands):

	Maturity	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
At June 30, 2024:					
Money market funds	1 year or less	$ 25,053	$ —	$ —	$ 25,053
U.S. government agency securities and treasuries	1 year or less	207,349	2	(84)	207,267
Total		$ 232,402	$ 2	$ (84)	$ 232,320
At December 31, 2023:					
Money market funds	1 year or less	$ 37,590	$ —	$ —	$ 37,590
U.S. government agency securities and treasuries	1 year or less	167,604	158	(32)	167,730
Total		$ 205,194	$ 158	$ (32)	$ 205,320

The Company has classified all of its short-term investments as available-for-sale as the sale of such securities may be required prior to maturity to implement management strategies, and therefore, they are carried at fair value. No available-for-sale debt securities held as of June 30, 2024 and December 31, 2023, had remaining maturities greater than one year. Unrealized gains and losses on available-for-sale securities are included as a component of comprehensive loss. As of June 30, 2024, none of the Company's securities were in material unrealized loss positions.

The Company reviews its investment holdings at the end of each reporting period and evaluates any unrealized losses using the expected credit loss model to determine if the unrealized loss is a result of a credit loss or other factors. The Company also evaluates its investment holdings for impairment using a variety of factors including the Company's intent to sell the underlying securities prior to maturity and whether it is more likely than not that the Company would be required to sell the securities before the recovery of their amortized basis. As of June 30, 2024, none of the available-for-sale securities have been in an unrealized loss position for greater than 12 months. During the six months ended June 30, 2024 and 2023, the Company did not recognize any impairment or realized gains or losses on sales of investments, and the Company did not record an allowance for, or recognize, any expected credit losses.

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 classifies its money market funds and U.S. treasury securities, which are valued based on quoted market prices in active markets with no valuation adjustment, as Level 1 assets within the fair value hierarchy.

The following table summarizes the Company's valuation hierarchy for its financial assets and liabilities measured at fair value on a recurring basis (in thousands):

	Level 1	Level 2	Level 3
At June 30, 2024:			
Assets:			
Money market funds	$ 25,053	$ —	$ —
U.S. government agency securities and treasuries	207,267	—	—
Total	$ 232,320	$ —	$ —
At December 31, 2023:			
Assets:			
Money market funds	$ 37,590	$ —	$ —
U.S. government agency securities and treasuries	167,730	—	—
Total	$ 205,320	$ —	$ —

Note 6. Strategic Investment

Astellas

Terms of the Agreement

On August 4, 2023 (the "Signing Date"), the Company entered into a series of agreements (collectively, the "Astellas Strategic Agreements") with Astellas US, LLC ("Astellas") as described below.

Securities Purchase and Registration Rights Agreement

Pursuant to a securities purchase agreement (the "Securities Purchase Agreement"), the Company agreed to issue and sell to Astellas in a private placement (the "Private Placement") an aggregate of 8,333,333 shares (the "Shares") of common stock, par value

$0.0001 per share, of the Company, at a purchase price of $3.00 per Share, for aggregate gross proceeds of $25.0 million. The Private Placement closed on August 7, 2023 (the "Closing Date").

The Company also entered into a registration rights agreement with Astellas (the "Registration Rights Agreement"), pursuant to which the Company agreed to register the resale by Astellas of the Shares no later than the 250th day after the Closing Date.

Strategic Rights Letter Agreement

On the Signing Date, the Company also entered into a strategic rights letter agreement (the "Astellas Strategic Rights Letter") with Astellas, pursuant to which, the Company agreed to the following: (i) grant Astellas the right to an observer seat on the Company's board of directors, any committee of the Company's board of directors, and the Company's scientific advisory board; (ii) for a period of 18 months, grant Astellas a right of notification with respect to a Change in Control (as defined in the Astellas Strategic Rights Letter); (iii) during the period beginning on the Closing Date and ending on the 12-month anniversary of the Closing Date (the "Exclusivity Period"), not to (1) solicit, knowingly encourage, negotiate or otherwise enter into *bona fide* discussions about a Program Transaction (as defined below) with any third party, (2) provide access to any confidential information of the Company relating to P-MUC1C-ALLO1, the Company's fully allogeneic CAR-T product candidate for multiple solid tumor indications (the "Program"), for purposes of knowingly facilitating a Program Transaction, or (3) enter into any letter of intent, contract or other commitment for a Program Transaction (a "Program Transaction" being an exclusive or co-exclusive license or co-promote or co-marketing arrangement or granting of commercial rights to sell, promote or market one or more products of the Program for any indication in the world); (iv) provide notice to Astellas (1) if the Company receives a *bona fide* proposal for a Change in Control transaction from a third party, unless such proposal is rejected by the Company's board of directors, or (2) of the commencement of a process approved by the Company's board of directors for a Change in Control, (3) if the Company receives a *bona fide* proposal for a Program Transaction from a third party unless the proposal is rejected by the Company's board of directors (a "Program Transaction Proposal") or, (4) following the Exclusivity Period, the commencement of substantive discussions for a Program Transaction with a third party in connection with a process approved by the Company's board of directors for a Program Transaction (a "Program Process"). In connection with a notice related to (x) a Program Transaction Proposal, Astellas shall have a right of first refusal to provide a competing proposal that is in aggregate more favorable to the Company than the Program Transaction Proposal, and thereby have a right to negotiate exclusively a possible Program Transaction for a specified period and (y) a Program Process, Astellas shall have a right of first offer to negotiate a Program Transaction for a specified period before the Company engages with any third party in meaningful substantive discussions, in each case, in accordance with the procedures and subject to the conditions set forth in the Astellas Strategic Rights Letter.

As partial consideration for the rights granted to Astellas under the Astellas Strategic Rights Letter, Astellas paid the Company a one-time payment in the amount of $25.0 million (the "Upfront Payment"). In connection with a Change in Control transaction or Program Transaction between the Company and Astellas, some, all or none of the Upfront Payment may be offset against payments owed by Astellas in a tiered basis to the Company dependent on certain factors set forth in the Astellas Strategic Rights Letter.

The Astellas Strategic Rights Letter shall terminate upon the earliest to occur of (i) the 18-month anniversary of the Closing Date, (ii) such time that Astellas owns fewer than 8,000,000 shares of common stock (subject to adjustment for any stock splits, stock dividends or recapitalizations) and (iii) the consummation of a Change in Control.

Revenue Recognition

The Securities Purchase Agreement and the Registration Rights Agreement are not within the scope of ASC 606 and were accounted for as an equity issuance with the deemed fair value of the shares issued scoped out of the transaction price. See Note 10 for further detail of the equity issuance. The rights granted under the Astellas Strategic Rights Letter were assessed under ASC 606, as the agreement represents a contract with a customer. The rights were deemed to not transfer any control to Astellas but give Astellas a right in the future, as all or a portion of the Upfront Payment of $25.0 million is creditable to Astellas towards a future potential transaction within the restrictions and time frames specified in the letter. Therefore, the full amount allocated to the rights is treated as a non-refundable payment.

The Company recorded the issuance of common stock at its estimated fair value on the date of issuance of $14.4 million, which reflects a discount for the lack of marketability ("DLOM") of the shares. The DLOM was applied due to the inability to trade the shares until they are registered. The $10.6 million difference between the $25.0 million paid by Astellas for the Securities Purchase Agreement and the fair market value of shares issued was allocated to the rights granted under the Astellas Strategic Rights Letter for a total amount allocable of $35.6 million. The amount will be recognized when the likelihood of Astellas exercising its remaining rights becomes remote, or when the proportionate amount of the tiered creditable amounts expire.

The Company recognized $11.9 million of revenue from the Astellas Strategic Agreements for the six months ended June 30, 2024. The Company has $23.7 million of deferred revenue on its condensed consolidated balance sheet as of June 30, 2024, expected to be recognized in tiered amounts by February 2025.

Note 7. Collaboration and License Agreements

Roche

Terms of the Agreement

In July 2022, the Company entered into a collaboration and license agreement (the "Roche Collaboration Agreement") with F. Hoffmann-La Roche Ltd and Hoffmann-La Roche Inc. (collectively, "Roche"), pursuant to which the Company granted to Roche: (i) an exclusive, worldwide license under certain Company intellectual property to develop, manufacture and commercialize allogeneic CAR-T cell therapy products from each of the Company's existing P-BCMA-ALLO1 and P-CD19CD20-ALLO1 programs (each a "Tier 1 Program"); (ii) an exclusive option to acquire an exclusive, worldwide license under certain Company intellectual property to develop, manufacture and commercialize allogeneic CAR-T cell therapy products from each of the Company's existing P-BCMACD19-ALLO1 and P-CD70-ALLO1 programs (each, a "Tier 2 Program"); (iii) an exclusive license under certain Company intellectual property to develop, manufacture and commercialize allogeneic CAR-T cell therapy products from the up to six Collaboration Programs (as defined below) designated by Roche; (iv) an option for a non-exclusive, commercial license under certain limited Company intellectual property to develop, manufacture and commercialize certain Roche proprietary cell therapy products for up to three solid tumor targets to be identified by Roche ("Licensed Products"); and (v) the right of first offer for two (2) early-stage existing programs within hematologic malignancies. The Roche Collaboration Agreement became effective in September 2022 upon expiration of the applicable waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended.

For each Tier 1 Program, the Company will perform development activities through a Phase 1 dose escalation clinical trial, and Roche is obligated to reimburse a specified percentage of certain costs incurred by the Company in its performance of such activities, up to a specified reimbursement cap for each Tier 1 Program. For Tier 1 Program activities beyond the Phase 1 dose escalation, Roche is obligated to reimburse all costs incurred for the program. For each Tier 2 Program, the Company will perform research and development activities either through selection of a development candidate for Investigational New Drug Application ("IND")-enabling studies or, subject to Roche's election and payment of an option maintenance fee, through completion of a Phase 1 dose escalation clinical trial. In addition, for each Tier 2 Program for which Roche exercises its option for an exclusive license, Roche is obligated to pay an option exercise fee. For each Tier 1 Program and Tier 2 Program, the Company will perform manufacturing activities until the completion of a technology transfer to Roche.

The parties are conducting an initial two-year research program to explore and preclinically test a specified number of agreed-upon next generation therapeutic concepts relating to allogeneic CAR-T cell therapies. Subject to Roche's election and payment of a specified fee, the parties would subsequently conduct a second research program of 18 months under which the parties could extend the existing work being performed under the initial term, and/or would explore and preclinically test a specified number of additional agreed-upon next generation therapeutic concepts relating to allogeneic CAR-T therapies. Roche may designate up to six heme malignancy-directed, allogeneic CAR-T programs from the two research programs, for each of which the Company will perform research and development activities through selection of a development candidate for IND-enabling activities (each, a "Collaboration Program"). Upon its designation of each Collaboration Program, Roche is obligated to pay a designation fee. After the Company's completion of lead optimization activities for a Collaboration Program, Roche may elect to transition such program to Roche with a payment to the Company or terminate it. Alternatively, Roche may elect, for a limited number of Collaboration Programs, to have the Company conduct certain additional development and manufacturing activities through the completion of a Phase 1 dose escalation clinical trial, in which case Roche will pay certain milestones and reimburse a specified percentage of the Company's costs incurred in connection with such development and manufacturing activities. For each Collaboration Program, the Company will perform manufacturing activities until the completion of a technology transfer to Roche.

In consideration for the rights granted to Roche under the Roche Collaboration Agreement, the Company received an upfront payment of $110.0 million. In addition, subject to Roche exercising its Tier 2 Program options, designating Collaboration Programs, and exercising its option for the Licensed Products commercial license and further contingent on, among other things, achieving specified objectives, the Company is eligible to receive up to (i) $1.5 billion in aggregate payments for Tier 1 Programs comprised of research funding, feasibility fees and $1.4 billion in development, regulatory and net sales milestones, (ii) $1.1 billion in aggregate payments for Tier 2 Programs comprised of option exercise and maintenance fees and $1.0 billion in development, regulatory and net sales milestones, (iii) $2.9 billion in aggregate payments for the Collaboration Programs comprised of certain reimbursements, fees and milestone payments; and (iv) $415.0 million in payments for the Licensed Products comprised of certain reimbursements, fees and milestone payments.

The Company is further entitled to receive, on a product-by-product basis, tiered royalty payments in the mid-single to low double digits on net sales of products from the Tier 1 Programs, optioned Tier 2 Programs and Collaboration Programs and in the low to mid-single digits for Licensed Products, in each case, subject to certain customary reductions and offsets. Royalties will be payable, on a product-by-product and country-by-country basis, until the latest of the expiration of the licensed patents covering such product in such country or ten years from first commercial sale of such product in such country.

The Roche Collaboration Agreement will continue in effect on a product-by-product and country-to-country basis until there is no remaining royalty or other payment obligations. The Roche Collaboration Agreement includes standard termination provisions, including for material breach or insolvency and for Roche's convenience. Certain of these termination rights can be exercised with respect to a particular product or license, as well as with respect to the entire Roche Collaboration Agreement.

Effective November 7, 2023, the Roche Collaboration Agreement was amended to, among other things: (i) reallocate certain existing manufacturing-related fees payable to us by Roche to add new manufacturing process development and implementation transfer fees for each of our existing Tier 1 Programs; and (ii) reallocate amounts in certain development milestone payments payable to us by Roche for each Tier 1 Program. The amendment also provided for the ability for the existing two-year research program to be extended for an additional 18 months with the payment of a $15.0 million milestone. All performance obligations and payment terms under the Roche Collaboration Agreement otherwise remained unchanged.

Revenue Recognition

At contract inception, the Company has identified six performance obligations under the Roche Collaboration Agreement: (i) licenses associated with the Tier 1 Programs, (ii) research and development efforts for the Tier 1 Programs, (iii) clinical drug supply for the Tier 1 Programs, (iv) manufacturing process development program for the Tier 1 Programs, (v) research and development efforts for the Tier 2 Programs, and (vi) research and development efforts for the Collaboration Programs. The Company concluded that Roche's options within the Roche Collaboration Agreement do not represent material rights and are not considered performance obligations as they do not contain a significant and incremental discount. The licenses associated with the Tier 1 Programs were delivered at the beginning of the agreement term and deemed capable of being distinct as the Company concluded that Roche has the knowledge and capabilities to continue development work and fully utilize the licenses without the Company's involvement.

In order to determine the transaction price, the Company evaluated all the payments to be received during the term of the Roche Collaboration Agreement. Certain milestones and additional fees were considered variable consideration, which were not included in the initial transaction price based on the most likely amount method. The Company will re-evaluate the transaction price in each reporting period and as uncertain events are resolved or other changes in circumstances occur. The Company determined that the transaction price at the inception of the Roche Collaboration Agreement was $185.0 million, which consists of the upfront payment of $110.0 million, future research funding for the Tier 1 Programs of $40.0 million and a $35.0 million milestone achieved in September 2022 for the Tier 1 Programs. The Company achieved developmental milestones of $30.0 million in the fourth quarter of 2023 and $15.0 million in the second quarter of 2024. In accordance with ASC 606, the Company determined that the achieved milestone represented an increase in the initial transaction price for its manufacturing process development program for the Tier 1 Programs in the form of the receipt of variable consideration that was previously constrained. The Company recognized revenue associated with the milestone in an amount equal to the proportional percentage of the actual costs incurred under the manufacturing process development programs since its inception as a percentage of the total costs expected to be incurred over the expected term of conduct of the manufacturing process development program. The remaining unrecognized revenue associated with the milestone is included within deferred revenue and is being recognized as revenue over the expected term of conduct of the manufacturing process development program. All other future potential milestone payments were excluded from the estimated total transaction price as they were considered constrained.

The performance obligation associated with the licenses for the Tier 1 Programs was satisfied as of the effective date of the Roche Collaboration Agreement. All other performance obligations will be recognized on a proportional basis as the underlying services are provided based on actual costs incurred as a percentage of total estimated costs. The Company determined that the cost-based input method most faithfully depicts the pattern in which these performance obligations are satisfied. Any cumulative effect of revisions to estimated costs to complete the Company's performance obligation will be recorded in the period in which changes are identified and amounts can be reasonably estimated. This approach requires the Company to use significant judgment and make estimates of future expenditures. If the Company's estimates or judgments change over the course of the collaboration, they may affect the timing and amount of revenue that it recognizes in the current and future periods.

Astellas

Terms of the Agreement

In April 2024, the Company and Xyphos Biosciences, Inc. ("Xyphos"), a wholly-owned subsidiary of Astellas Pharma Inc., entered into a collaboration and license agreement (the "Astellas Collaboration Agreement"), pursuant to which the Company granted to Xyphos (i) an exclusive license under certain Company intellectual property to conduct activities under two research plans, to create one Company-developed CAR-T construct to form the basis of two convertibleCAR® product candidates targeting solid tumors, which will be generated by using both parties' platform technology (each a "Research Product"), where each Research Product will bind to a human tumor-associated antigen, and may also bind to a human antigen associated with a tumor microenvironment, (ii) an exclusive license under certain Company intellectual property after certain conditions are satisfied to develop, and commercialize up to two Research Products that have been designated as licensed products following receipt of the applicable IND-enabling data package, and (iii) after certain conditions are satisfied, an exclusive license under certain Company intellectual property to manufacture the products once manufacturing technology transfer has been completed.

For each research plan, the Company will perform research and development activities through the generation of an IND-enabling data package and Xyphos is obligated to fully reimburse the Company for full-time equivalent costs and expenses incurred by the Company in its performance of certain activities, up to an agreed annual cap. Xyphos may request that the Company transfer the manufacturing process for a product to Xyphos, or that, subject to the payment of a fee, the Company manufacture the Allo-T Cells forming part of such product for use in the first Phase 1 trial of such product.

In consideration for the rights granted to Xyphos under the Astellas Collaboration Agreement, the Company received an upfront payment of $50.0 million, $6.0 million of which was advanced for the Company's costs and expenses for its research and development activities. In addition, the Company could also receive up to $550.0 million in potential development and sales milestone payments and contingency payments. The Company is further entitled to receive, on a product-by-product basis, tiered royalty payments up to the low teens as a percentage of net sales of licensed products. Royalties will be payable, on a product-by-product basis, during the period commencing on the first commercial sale of a product in a country until the latest of (a) the expiration of the licensed patents covering such product in such country, (b) the expiration of regulatory exclusivity for such product in such country and (c) a certain period of time following such first commercial sale of such product in such country.

The Astellas Collaboration Agreement will continue in effect on a product-by-product basis until there are no remaining royalty or other payment obligations for each such product. The Astellas Collaboration Agreement includes standard termination provisions, including for material breach or insolvency and for Xyphos's convenience. Certain of these termination rights can be exercised with respect to a particular country, licensed product, or research program, as well as with respect to the entire Astellas Collaboration Agreement.

Revenue Recognition

At contract inception, the Company has identified six distinct performance obligations under the Astellas Collaboration Agreement: (i) a material right for the option to obtain a commercial license for the first product candidate, (ii) a material right for the option to obtain a commercial license for the second product candidate, (iii) research and development efforts for the first product candidate, (iv) research and development efforts for the second product candidate, (v) process development and other target agnostic activities to support production of cell manufacturing, and (vi) manufacturing of both product candidates during the research term.

In order to determine the transaction price, the Company evaluated all the payments to be received during the term of the Astellas Collaboration Agreement. The development and sales milestone payments and certain payments were considered variable consideration and were not included in the initial transaction price based on the most likely amount method. The Company will re-evaluate the transaction price in each reporting period and as uncertain events are resolved or other changes in circumstances occur. The Company determined that the transaction price at the inception of the Astellas Collaboration Agreement was $63.8 million, which consists of the upfront payment of $50.0 million, which includes the $6.0 million advanced for the Company's costs and expenses for its research and development activities, as well as estimated incremental research and development costs over the duration of the research term of $13.8 million to be reimbursed by Astellas. As a practical alternative to estimating the standalone selling price when the goods or services are both (i) similar to the original goods and services in the contract and (ii) provided in accordance with the terms of the original contract, the Company allocated the total amount of variable consideration expected to be received from the customer to the total goods or services expected to be provided to the customer.

In assessing whether the options under the Astellas Collaboration Agreement represent material rights, the Company considered if there was additional consideration the Company would be entitled to upon the option exercise and the standalone selling price of the underlying goods and services. For the material rights identified as performance obligations above, the Company concluded that each

of the options to obtain commercial licenses provided Astellas with a discount that it otherwise would not have received without entering into the Astellas Collaboration Agreement.

The material rights for the commercial licenses will be recognized upon the first to occur: once the licenses are exercised or once the rights expire, which is estimated to occur at the end of the research term. The remaining performance obligations will be recognized on a proportionate basis as the underlying services are provided based on actual costs incurred as a percentage of total estimated costs. The Company determined that the cost-based input method for these performance obligations most faithfully depicts the pattern in which these performance obligations are satisfied. Any cumulative effect of revisions to estimated costs to complete the Company's performance obligation will be recorded in the period in which changes are identified and amounts can be reasonably estimated. This approach requires the Company to use significant judgment and make estimates of future expenditures. If the Company's estimates or judgments change over the course of the collaboration, they may affect the timing and amount of revenue that it recognizes in the current and future periods.

Takeda

In October 2021, the Company entered into a collaboration and license agreement (the "Takeda Collaboration Agreement") with Takeda Pharmaceuticals USA, Inc. ("Takeda"), pursuant to which the Company granted to Takeda a worldwide exclusive license under the Company's certain platform technologies including piggyBac, Cas-CLOVER, biodegradable DNA and RNA nanoparticle delivery technology and other proprietary genetic engineering platforms to research, develop, manufacture and commercialize gene therapy products for certain indications. Under the Takeda Collaboration Agreement, the Company received an upfront payment of $45.0 million and R&D reimbursement payments during the term of the agreement.

On May 31, 2023, the Company received written notice from Takeda of its election to terminate the Takeda Collaboration Agreement, effective July 30, 2023 (the "Termination Date"). Until the Termination Date, the parties performed their respective obligations under the Collaboration Agreement and upon the Termination Date, the Company's exclusivity obligations under the Collaboration Agreement terminated. In addition, the licenses granted to Takeda by the Company, and the licenses granted to the Company by Takeda to perform research activities under the Collaboration Agreement terminated.

Deferred Revenue Reconciliation

While the Company's entry into the Astellas Strategic Rights Letter was a strategic investment, for purposes of recognizing the remaining amount, it has been determined to be revenue, and as such, reference to remaining deferred revenue for these agreements is included in the following table. There were no contract assets as of June 30, 2024 related to the Roche Collaboration Agreement, Takeda Collaboration Agreement, Astellas Strategic Rights Letter, or Astellas Collaboration Agreement. A contract asset of $30.0 million for the Roche Collaboration Agreement was netted against deferred revenue for the year ended December 31, 2023. There were no contract assets as of December 31, 2023 related to the Takeda Collaboration Agreement or Astellas Strategic Rights Letter.

A reconciliation of the closing balance of deferred revenue related to the agreements is as follows (in thousands):

	Roche Collaboration Agreement	Takeda Collaboration Agreement	Astellas Strategic Rights Letter	Astellas Collaboration Agreement	Total
Balance as of December 31, 2022	$ 31,749	$ 9,307	$ —	$ —	$ 41,056
Amounts received/invoiced	30,741	5,111	35,583	—	71,435
Revenue recognized	(50,285)	(14,418)	—	—	(64,703)
Balance as of December 31, 2023	$ 12,205	$ —	$ 35,583	$ —	$ 47,788
Amounts received/invoiced	74,540	—	—	50,000	124,540
Revenue recognized	(42,198)	—	(11,861)	(56)	(54,115)
Balance as of June 30, 2024	$ 44,547	$ —	$ 23,722	$ 49,944	$ 118,213

Note 8. California Institute of Regenerative Medicine Award

The Company has been awarded funding from the California Institute of Regenerative Medicine ("CIRM") to develop certain internal programs. Under the terms of the funding, both CIRM and the Company have co-funded specified programs, under which funding is provided in developmental milestones determined as a part of the award. The Company is obligated to share potential future revenues for the related programs with CIRM. The percentage of revenues due to CIRM in the future is dependent on the amount of the award received and whether revenue is generated from product sales or through 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. As an alternative to revenue sharing, the Company has the option to convert any award to a loan, which such option the Company must exercise on or before ten business days after the U.S. Food and Drug Administration ("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 any award to a loan, it would be obligated to repay the loan within ten business days of making such election. Repayment amounts due to CIRM vary dependent on when the award is converted to a loan, ranging from 60% of the award granted to the full amount 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 accounts for this award as a liability as the Company's intention 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 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 its P-PSMA-101 program. The Company received the full amount of the award based on achievement of specific developmental milestones. In the third quarter of 2023, the Company decided not to pursue additional clinical or other development activities of the P-PSMA-101 program, which resulted in write off of the amount previously included in the deferred CIRM grant liability as the Company no longer intends to repay the award and which amount is included in other income in the accompanying consolidated statement of operations and comprehensive loss.

Note 9. Term Debt

In 2017, the Company entered into a loan and security agreement with Oxford Finance LLC ("Oxford"), which was subsequently amended ("Amended Loan Agreement"), pursuant to which the Company borrowed a total amount of $30.0 million.

In February 2022, the Company entered into a new Loan and Security Agreement ("2022 Loan Agreement") with Oxford. Pursuant to the terms of the 2022 Loan Agreement, the Company borrowed $60.0 million in term loans (the "Term Loans"), of which $31.6 million was used to repay the balance outstanding under the Amended Loan Agreement, including $0.2 million of accrued interest. Under the 2022 Loan Agreement the initial interest-only period was through April 1, 2025, followed by 23 equal monthly payments of principal and applicable interest. In September 2022, a qualifying equity event, as defined in the 2022 Loan Agreement, was achieved which extended the interest-only period through April 1, 2026, followed by 11 equal monthly payments of principal and applicable interest. As a result, all amounts outstanding under the 2022 Loan Agreement will mature on February 1, 2027 (the "Maturity Date"). In connection with the repayment of the balance outstanding under the Amended Loan Agreement, the Company incurred amendment and final payment fees of $1.5 million previously due on the earlier of (i) the maturity date, (ii) acceleration of any Amended Loan Agreement loans, or (iii) the prepayment of any Amended Loan Agreement loans.

The Company accounted for this amendment as debt modification in accordance with ASC Topic 470, *Debt* because the modification was not considered substantial.

The balance outstanding under the 2022 Loan Agreement initially bore interest at a floating per annum rate equal to 7.83% plus the greater of (a) the 30-day U.S. Dollar (USD) LIBOR rate and (b) 0.11%. The 2022 Loan Agreement included a provision addressing replacement of LIBOR with an alternate benchmark rate, when LIBOR was phased out in June 2023. Effective July 1, 2023, the balance outstanding under the 2022 Loan Agreement bears interest at a floating per annum rate equal to the greater of (a) 7.94% and (b) the sum of (i) the 1-Month CME Term Secured Overnight Financing Rate ("SOFR") on the last business day of the month that immediately precedes the month in which the interest will accrue, (ii) 0.10% and (iii) 7.83%. The interest rate applicable to the Term Loans as of June 30, 2024 was 13.26% per annum. The Company is required to make a final payment fee 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 Loan. As of June 30, 2024, there was $60.0 million of the principal balance outstanding under the Term Loans. In connection with the Amended Loan Agreement, the Company previously incurred debt issuance costs of $1.5 million, which have been recorded as a debt discount and are being accreted to interest expense over the term of the Term Loans. Interest on the Term Loans, 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 14.75%. As of June 30, 2024, the balance of the unamortized debt discount was $1.2 million. The balance of the accrued final payment fee was $2.8 million as of June 30, 2024 and is presented within other long-term liabilities in the accompanying condensed consolidated balance sheet.

The Company has an option to repay the outstanding debt under the 2022 Loan Agreement at any time in increments of $5.0 million, with no prepayment penalty.

The Company may use the proceeds from the Term Loans solely for its working capital requirements and to fund its general business operations. The Company's obligations under the 2022 Loan Agreement are secured by a first priority security interest in substantially all of its current and future assets, other than its intellectual property. In addition, the Company has also agreed not to

encumber its intellectual property assets, except as permitted by the 2022 Loan Agreement. While any amounts are outstanding under the 2022 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 declaring dividends or making other distributions or payments on its capital stock in excess of $0.3 million per calendar year, subject to limited exceptions. As of June 30, 2024, the Company was in compliance with all covenants under the 2022 Loan Agreement.

Note 10. Stockholders' Equity

Authorized Shares

In connection with the completion of the Company's initial public offering in July 2020, the Company amended its certificate of incorporation to authorize 250,000,000 shares of common stock, par value $0.0001 per share, and 10,000,000 shares of undesignated preferred stock, par value $0.0001 per share, that may be issued from time to time by the Company's board of directors in one or more series. 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 Company's board of directors. Since the Company's inception, there have been no dividends declared.

Warrants

Pursuant to the Amended Loan Agreement, the Company issued Oxford (i) in 2017, a warrant to purchase 93,518 shares of common stock at an exercise price of $4.28 per share, which will expire in 2027 unless earlier exercised and (ii) in 2018 and 2019, warrants to purchase an aggregate of 27,604 shares of common stock at an exercise price of $7.25 per share, which will expire in 2028 and 2029, respectively, unless earlier exercised.

Sale of Common Stock

On August 4, 2023, the Company entered into the Securities Purchase Agreement with Astellas, pursuant to which the Company agreed to issue and sell to Astellas in the Private Placement an aggregate of 8,333,333 shares of common stock at a purchase price of $3.00 per Share, for aggregate gross proceeds of $25.0 million. The Private Placement closed on August 7, 2023. The Company recorded the issuance of common stock at its estimated fair value on the date of issuance of $14.4 million, which reflects a DLOM of the shares. The DLOM was applied due to the inability to trade the shares until they are registered. The issuance of the equity shares was recorded upon the delivery of the underlying shares, with the associated fair value recorded within equity on the Company's condensed consolidated balance sheets.

At the Market Facility

In August 2021, the Company entered into a Controlled Equity Offering^{SM} Sales Agreement, which was amended and restated in August 2024 (the "Sales Agreement") with Cantor Fitzgerald & Co. ("Cantor") to sell shares of common stock, from time to time, through an "at the market offering" program having an aggregate offering price of up to $85.0 million through which Cantor would act as sales agent. During the six months ended June 30, 2024, the Company did not issue any shares of common stock under the "at the market offering" program. During the six months ended June 30, 2023, the Company issued and sold an aggregate of 119,000 shares of common stock under the "at the market offering" program at a weighted average price of $8.04 per share for net proceeds of approximately $0.9 million.

Note 11. Stock-Based Compensation

In July 2020, the Company's board of directors and stockholders approved and adopted the Company's 2020 Equity Incentive Plan (the "2020 Plan"). Under the 2020 Plan, the Company may grant stock options, stock appreciation rights, restricted stock, restricted stock units and other stock or cash-based awards to individuals who are current employees, officers, directors or consultants of the Company. A total of 11,183,476 shares of common stock were approved to be initially reserved for issuance under the 2020 Plan. The number of shares that remained available for issuance under the Company's previous equity incentive plan as of the effective date of the 2020 Plan and shares subject to outstanding awards under the Company's previous equity incentive plan as of the effective date of the 2020 Plan that are subsequently canceled, forfeited or repurchased by the Company are added to the shares reserved under the 2020 Plan. The number of shares of common stock available for issuance under the 2020 Plan is automatically increased on the first day of each calendar year during the ten-year term of the 2020 Plan, beginning with January 1, 2021 and ending with January 1, 2030, by an amount equal to 5% of the outstanding number of shares of the Company's common stock on December 31 of the preceding calendar year or such lesser amount as determined by the Company's board of directors.

In February 2022, the Company's board of directors approved and adopted the 2022 Inducement Plan (the "Inducement Plan"). Under the Inducement Plan, the Company may grant nonstatutory stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards, performance awards and other awards to individuals not previously employees or non-employee directors of the Company, as an inducement toward entering into employment with the Company. Under the Inducement Plan approved in February 2022, the maximum number of shares of common stock initially approved to be issued was 2,000,000 shares. In December 2023, the Compensation Committee of the Company's board of directors approved an amendment to the Inducement Plan which increased the pool to a maximum of 3,517,105 shares.

Stock Options

The following is a summary of the Company's stock option activity for the six months ended June 30, 2024:

	Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value (thousands)
Balance at January 1, 2024	14,909,912	$ 6.84		
Granted	3,720,292	3.84		
Exercised	(12,823)	2.49		
Forfeited/Cancelled	(695,931)	4.94		
Balance at June 30, 2024	17,921,450	$ 6.30	7.53	$ 823
Options vested and expected to vest as of June 30, 2024	17,921,450	$ 6.30	7.53	$ 823
Options vested and exercisable as of June 30, 2024	9,611,809	$ 7.69	6.48	$ 551

The weighted-average grant date fair value of options granted during the six months ended June 30, 2024 and 2023 was $2.78 and $3.44, respectively. The aggregate intrinsic value of options exercised was $13 thousand and $22 thousand during each of the six months ended June 30, 2024 and 2023, respectively, determined as of the date of exercise. The Company received $32 thousand and $0.1 million in cash from options exercised during each of the six months ended June 30, 2024 and 2023, respectively.

As of June 30, 2024, total unrecognized compensation cost related to stock options was $23.0 million, and the weighted-average period over which this cost is expected to be recognized was approximately 2.6 years.

The fair value of options granted is estimated at the date of grant using the Black-Scholes option pricing model. Forfeitures are accounted for as incurred as a reversal of any share-based compensation expense related to options that will not vest. The assumptions that the Company used to determine the fair value of options granted to employees, non-employees and directors were as follows:

	Six Months Ended June 30,	
	2024	2023
Risk-free interest rate	4.0%	4.0%
Expected volatility	80.5%	82.6%
Expected term (years)	5.7	6.0
Dividend yield	—	—

Restricted Stock Units

The following is a summary of the Company's restricted stock unit ("RSU") activity for the six months ended June 30, 2024:

	Shares	Weighted Average Grant Date Fair Value
Balance at January 1, 2024	4,555,099	$ 4.35
Granted	2,674,001	3.54
Vested	(1,272,842)	4.36
Forfeited/Cancelled	(428,852)	4.12
Balance at June 30, 2024	5,527,406	$ 3.98

RSU awards are share awards that, upon vesting, will deliver to the holder shares of the Company's common stock. The RSUs granted to employees and non-employee directors vest up to four years from the grant date. The grant-date fair value is recognized as compensation expense over the vesting period. As of June 30, 2024, total unrecognized compensation cost related to RSUs was $18.2 million, and the weighted-average period over which this cost is expected to be recognized was approximately 3.0 years.

2020 Employee Stock Purchase Plan

In July 2020, the Company's board of directors and stockholders approved and adopted the 2020 Employee Stock Purchase Plan (the "ESPP"), which became effective as of the pricing of the Company's initial public offering. A total of 615,000 shares of common stock were approved to be initially reserved for issuance under the ESPP. The number of shares of common stock available for issuance under the ESPP is automatically increased on the first day of each calendar year during the first ten-years of the term of the ESPP, beginning with January 1, 2021 and ending with January 1, 2030, by an amount equal to the lessor of (i) 1% of the outstanding number of shares of the Company's common stock on December 31 of the preceding calendar year, (ii) 1,230,000 shares of common stock or (iii) such lesser amount as determined by the Company's board of directors. Under the 2020 ESPP, substantially all employees can elect to have up to 15% of their annual compensation withheld to purchase up to 3,000 shares of common stock per purchase period, subject to certain limitations. The shares of common stock can be purchased over an offering period of six months and at a price of 85% of the fair market value per share of common stock on the first trading day of the applicable offering period or on the exercise date of the applicable offering period, whichever is less. Under applicable accounting guidance, the 2020 ESPP is classified as a compensatory plan. During the six months ended June 30, 2024, a total of 310,054 shares were purchased by the Company's employees under the 2020 ESPP resulting in net proceeds of $0.5 million.

The Company uses the Black-Scholes pricing model to estimate the fair value of the purchase rights issued under the ESPP on each offering date. The assumptions that the Company used to determine the fair value of the purchase rights issued to employees were as follows:

	Six Months Ended June 30,	
	2024	2023
Risk-free interest rate	5.4%	5.0%
Expected volatility	95.3%	73.2%
Expected term (years)	0.5	0.5
Dividend yield	—	—

The Company recorded total stock-based compensation expense related to stock options, RSUs and the ESPP in the following expense categories of the accompanying condensed consolidated statements of operations and comprehensive income (loss) (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2024	2023	2024	2023
Research and development	$ 3,161	$ 3,412	$ 6,168	$ 6,161
General and administrative	4,468	2,062	6,844	6,793
Total stock-based compensation expense	$ 7,629	$ 5,474	$ 13,012	$ 12,954

Note 12. Commitments and Contingencies

Operating Leases

As of June 30, 2024, the Company had operating leases consisting of approximately 110,000 square feet of manufacturing, laboratory and office space in San Diego, California, including 87,000 square feet under a lease that expires on December 31, 2029, which contains a clinical manufacturing facility adjacent to office and laboratory space. The lease agreements include two options to extend the term for a period of 5 years each.

In October 2021, the Company entered into a sublease agreement for a facility in San Diego, California consisting of approximately 23,000 square feet to be used for research and administrative activities. The lease term commenced in March 2022 and will expire on December 31, 2025.

During the six months ended June 30, 2024 and 2023, the Company recognized $2.9 million of operating lease expense for each of the periods. During the six months ended June 30, 2024, the Company paid $3.1 million for its operating leases. As of June 30, 2024, the weighted-average remaining lease term and weighted-average discount rate for operating leases were 5.2 years and 8.9%, respectively.

As of June 30, 2024, maturities of lease liabilities were as follows (in thousands):

Year ending December 31,		
2024 (remaining six months)	$	3,121
2025		6,374
2026		5,107
2027		5,260
2028		5,418
Thereafter		5,581
Total future lease payments		30,861
Imputed interest		(6,004)
Total lease liability balance		24,857
Less current portion of lease liability		6,039
Lease liability, net of current portion	$	18,818

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 from 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 require the Company, among other things, to indemnify them against certain liabilities that may arise by reason of their status or service as directors or officers. The maximum potential amount of future payments the Company could be required to make under these indemnification agreements is, in many cases, unlimited. The Company has not incurred any material costs as a result of such indemnifications and is not currently aware of any indemnification claims.

Legal Contingencies

In the ordinary course of business, the Company may face claims brought by third parties against the Company. The Company believes that there are currently no lawsuits, threats of litigation, or asserted or unasserted claims 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. Net Loss Per Share

Basic net loss (income) per share is computed by dividing net loss (income) attributable to common stockholders for the period by the weighted-average number of common shares outstanding during the period. Diluted net loss (income) per share reflects the additional dilution from potential issuances of common stock, such as stock issuable pursuant to the exercise of stock options and from purchases under the ESPP, as well as from the possible exercise of the outstanding warrants.

The Company's potentially dilutive securities, which include warrants to purchase common stock, common stock options, restricted stock units and common stock from the ESPP, 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 shares of common stock, 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:

	Six Months Ended June 30,	
	2024	2023
Outstanding stock options and RSUs	23,448,856	20,413,534
Warrants to purchase common stock	121,122	121,122
ESPP Shares	183,457	190,132
	23,753,435	20,724,788

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations.

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our unaudited condensed consolidated financial statements and related notes appearing elsewhere in this Quarterly Report on Form 10-Q and our audited consolidated financial statements and the related notes thereto included in our Annual Report on Form 10-K for the year ended December 31, 2023, or 2023 Annual Report, as filed with the Securities and Exchange Commission, or SEC. Operating results are not necessarily indicative of results that may occur in future periods. This discussion, particularly information with respect to our future results of operations or financial condition, business strategy and plans and objectives of management for future operations, includes forward-looking statements that involve risks and uncertainties as described under the heading "Special Note Regarding Forward-Looking Statements" in this Quarterly Report on Form 10-Q. You should review the disclosure under the heading "Risk Factors" in this Quarterly Report on Form 10-Q for a discussion of important factors that could cause our actual results to differ materially from those anticipated in these forward-looking statements.

Overview

We are a clinical-stage cell therapy and genetic medicines company advancing a new class of treatments for patients with cancer and rare diseases. Since our inception, our operations have focused on organizing and staffing our company, business planning, raising capital, in-licensing, developing and acquiring intellectual property rights and establishing and protecting our intellectual property portfolio, developing our genetic 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 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 Delivery System, Cas-CLOVER Site-specific Gene Editing System and nanoparticle-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 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 allogeneic, or off-the-shelf, product candidates. We are advancing a broad pipeline and have multiple CAR-T product candidates in the clinical phase in both solid tumor and hematological oncology indications. Within genetic medicines, we believe our technologies have the potential to create a new class of 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.

We manufacture these product candidates using our non-viral piggyBac DNA Delivery System. 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 are cryopreserved and stored at treatment centers for future off-the-shelf use. In addition, our allogeneic product candidates use our proprietary Cas-CLOVER site-Specific Gene Editing System to reduce or eliminate alloreactivity, as well as our booster molecule technology for manufacturing scalability.

Our most advanced internal solid tumor programs are:

- **P-MUC1C-ALLO1**, which is a fully allogeneic CAR-T product candidate 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 MUC1-C. We are currently evaluating P-MUC1C-ALLO1 in a Phase 1 clinical trial, and we shared an initial clinical data update at the European Society for Medical Oncology Immuno-Oncology 2022 Annual Congress, or ESMO I-O, in December 2022. We recently presented a poster at American Association for Cancer Research, or AACR, Annual Meeting in April 2024, focused on the correlation of higher lymphodepletion and cell expansion. We anticipate sharing a clinical update at an appropriate forum in the second half of 2024.
- **P-PSMA-ALLO1**, which is a fully allogeneic CAR-T product candidate targeting prostate-specific membrane antigen, or PSMA, being developed to treat patients with metastatic castrate-resistant prostate cancer, or mCRPC. We previously evaluated P-PSMA-101, a first generation autologous program, in a Phase 1 trial, however we made the strategic decision to stop further enrollment on that program and using findings from the clinical trial to inform the next generation allogeneic version. We had paused development of P-PSMA-ALLO1 to incorporate learnings from our initial allogeneic

programs. Based on these learnings, we have recently reinitiated development and plan to commence Investigational New Drug Application-, or IND-,enabling activity in 2024.

Our most advanced hematological programs, partnered with Roche, are:

- **P-BCMA-ALLO1**, which is a fully allogeneic CAR-T product candidate targeting B-cell maturation antigen, or BCMA, being developed to treat relapsed/refractory multiple myeloma patients. In July 2022, we entered into a collaboration and license agreement, or the Roche Collaboration Agreement, with F. Hoffmann-La Roche Ltd and Hoffmann-La Roche Inc., or, collectively Roche, pursuant to which P-BCMA-ALLO1 was exclusively licensed to Roche. Roche is responsible for all future development costs for P-BCMA-ALLO1 and will assume future development activities following the completion of the Phase 1 clinical trial. We recently shared a clinical data update on this program at the 65th American Society of Hematology, or ASH, Annual Meeting and Exposition in December 2023. In March 2024, we announced that P-BCMA-ALLO1 received orphan drug designation from the U.S. Food and Drug Administration, or FDA. In addition, we presented a poster on BCMA refractory patients at the AACR Annual Meeting in April 2024. We plan to share an additional clinical update on this program at the International Myeloma Society, or IMS, 21st Annual Meeting in September 2024. Additional clinical updates are planned for the second half of 2024, subject to coordination with Roche.
- **P-CD19CD20-ALLO1**, which is a fully allogeneic CAR-T product candidate for B-cell hematological indications. This is our first Dual CAR program, which contains two fully functional CAR molecules to target cells that express at least one of the two intended targets. We believe that our ability to include two fully functional CAR molecules in a T cell could provide a competitive advantage compared to current therapies, including in B-cell malignancies that may have heterogeneous antigen expression, and that targeting both CD19 and CD20 has the potential to overcome the limitations of currently available CD19-directed CAR-T products where antigen escape has been observed as an important resistance mechanism. We recently initiated the Phase 1 trial for P-CD19CD20-ALLO1 in late 2023. P-CD19CD20-ALLO1 was exclusively licensed to Roche pursuant to the Roche Collaboration Agreement and Roche will be responsible for a majority of future development costs for P-CD19CD20-ALLO1 and will assume future development activities following the completion of the Phase 1 clinical trial. We plan to share an interim data update in the second half of 2024, subject to coordination with Roche.

Our investigational genetic medicines were initially developed by utilizing our piggyBac technology together with adeno-associated virus, or AAV, to overcome the major limitations of traditional AAV gene therapy. Given recent developments in our non-viral nanoparticle technology, we have transitioned our portfolio to a fully non-viral approach, freeing future product development in genetic medicines of AAV limitations. We believe that our approach can result in integration and long-term stable expression at potentially much lower doses than AAV technology, thus also conferring cost and tolerability benefits.

Our most advanced genetic medicines programs are:

- **P-KLKB1-101**, which is an investigational liver-directed non-viral gene editing approach for the treatment of hereditary angioedema, or HAE. HAE is a rare, inherited disorder that results in the swelling of the limbs, intestinal tract, and airways, which can be both debilitating and life-threatening. We shared data highlighting durable disease correction and high fidelity in preclinical studies using our enhanced gene-relevant editing technology, Cas-CLOVER, at the American Society of Gene and Cell Therapy, or ASGCT, Annual Meeting in May 2024.
- **P-FVIII-101**, which is a liver-directed gene insertion program combining piggyBac technology with our non-viral nanoparticle technology for the *in vivo* treatment of Hemophilia A. Hemophilia A is a hereditary disorder caused by a deficiency in Factor VIII, or FVIII, production resulting in excessive bleeding occurring either spontaneously or due to trauma. We shared preclinical data on this program demonstrating the potential to correct FVIII deficiency to near-normal levels in both juvenile and adult mouse models using our fully non-viral, whole gene insertion system at the ASGCT Annual Meeting in May 2024.

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-MUC1C-ALLO1, and begin to commercialize any approved products. We anticipate an overall increase in development costs as we continue to expand the number of product candidates in our pipeline and pursue clinical development of those candidates. To offset some of these increased development costs, the collaborations with Roche and Astellas include program reimbursements. We anticipate that our general and administrative expenses will increase as we increase our research and development activities, increase headcount, maintain compliance with Nasdaq listing rules and SEC requirements and continue to operate 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.

We currently source our product candidates from our internal clinical good manufacturing practices, or GMP, manufacturing facility. We also work with a variety of suppliers to provide our manufacturing raw materials including media, DNA and RNA components. In the future, we may also build one or more commercial manufacturing facilities for any FDA approved product candidates.

Collaboration Agreements

Roche Collaboration Agreement

In July 2022, we entered into the Roche Collaboration Agreement with Roche, pursuant to which we granted to Roche: (i) an exclusive, worldwide license under certain of our intellectual property to develop, manufacture and commercialize allogeneic CAR-T cell therapy products from each of our existing P-BCMA-ALLO1 and P-CD19CD20-ALLO1 programs, or each, a Tier 1 Program; (ii) an exclusive option to acquire an exclusive, worldwide license under certain of our intellectual property to develop, manufacture and commercialize allogeneic CAR-T cell therapy products from our existing P-BCMACD19-ALLO1 and P-CD70-ALLO1 programs, or each, a Tier 2 Program; (iii) an exclusive license under certain of our intellectual property to develop, manufacture and commercialize allogeneic CAR-T cell therapy products from the up to six Collaboration Programs, as defined below, designated by Roche; (iv) an option for a non-exclusive, commercial license under certain limited intellectual property to develop, manufacture and commercialize certain Roche proprietary cell therapy products for up to three solid tumor targets to be identified by Roche, or Licensed Products; and (v) the right of first offer for two of our early-stage existing programs within hematologic malignancies.

For each Tier 1 Program, we will perform development activities through a Phase 1 dose escalation clinical trial, and Roche is obligated to reimburse a specified percentage of certain costs incurred by us in our performance of such activities, up to a specified reimbursement cap for each Tier 1 Program. For Tier 1 Program activities beyond the Phase 1 dose escalation, Roche is obligated to reimburse all costs incurred for the program. For each Tier 2 Program, we will perform research and development activities either through selection of a development candidate for IND-enabling studies or, subject to Roche's election and payment of an option maintenance fee, through completion of a Phase 1 dose escalation clinical trial. In addition, for each Tier 2 Program for which Roche exercises its option for an exclusive license, Roche is obligated to pay us an option exercise fee. For each Tier 1 Program and Tier 2 Program, we will perform manufacturing activities until the completion of a technology transfer to Roche.

The parties are conducting an initial two-year research program to explore and preclinically test a specified number of agreed-upon next generation therapeutic concepts relating to allogeneic CAR-T cell therapies. Subject to Roche's election and payment of a fee, the parties would subsequently conduct a second research program of 18 months under which the parties could extend the existing work being performed under the initial term, and/or would explore and preclinically test a specified number of additional agreed-upon next generation therapeutic concepts relating to allogeneic CAR-T therapies. Roche may designate up to six heme malignancy-directed, allogeneic CAR-T programs from the two research programs, for each of which we will perform research and development activities through selection of a development candidate for IND-enabling activities, or each, a Collaboration Program. Upon its designation of each Collaboration Program, Roche is obligated to pay a designation fee. After we complete lead optimization activities for a Collaboration Program, Roche may elect to transition such program to Roche with a payment to us or terminate it. Alternatively, Roche may elect, for a limited number of Collaboration Programs, to have us conduct certain additional development and manufacturing activities through the completion of a Phase 1 dose escalation clinical trial, in which case Roche will pay certain milestones and reimburse a specified percentage of our costs incurred in connection with such development and manufacturing activities. For each Collaboration Program, we will perform manufacturing activities until the completion of a technology transfer to Roche.

Under the Roche Collaboration Agreement, Roche paid an upfront payment to us of $110.0 million. Subject to Roche exercising its Tier 2 Program options, designating Collaboration Programs, and exercising its option for the Licensed Products commercial license and contingent on, among other things, the products from the Tier 1 Programs, optioned Tier 2 Programs and Collaboration Programs achieving specified development, regulatory, and net sales milestone events, we are eligible to receive certain reimbursements, fees and milestone payments, in the aggregate up to $6.0 billion, comprised of (i) $1.5 billion for the Tier 1 Programs; (ii) $1.1 billion for the Tier 2 Programs, (iii) $2.9 billion for the Collaboration Programs; and (iv) $415.0 million for the Licensed Products.

We are further entitled to receive, on a product-by-product basis, tiered royalty payments in the mid-single to low double digits on net sales of products from the Tier 1 Programs, optioned Tier 2 Programs and Collaboration Programs and in the low to mid-single digits for Licensed Products, in each case, subject to certain customary reductions and offsets. Royalties will be payable, on a product-by-product and country-by-country basis, until the latest of the expiration of the licensed patents covering such product in such country or ten years from first commercial sale of such product in such country.

The Roche Collaboration Agreement became effective in September 2022 upon the expiration or termination of the applicable waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and will continue on a product-by-product and country-to-country basis until there is no remaining royalty or other payment obligations. The Roche Collaboration Agreement includes standard termination provisions, including for material breach or insolvency and for Roche's convenience. Certain of these termination rights can be exercised with respect to a particular product or license, as well as with respect to the entire Roche Collaboration Agreement.

Effective November 7, 2023, the Roche Collaboration Agreement was amended to, among other things: (i) reallocate certain existing manufacturing-related fees payable to us by Roche to add new manufacturing process development and implementation transfer fees for each of our existing Tier 1 Programs; and (ii) reallocate amounts in certain development milestone payments payable to us by Roche for each Tier 1 Program. The amendment also provided for the ability for the existing two-year research program to be extended for an additional 18 months with the payment of a $15.0 million milestone. All performance obligations and payment terms under the Roche Collaboration Agreement otherwise remained unchanged.

Astellas Collaboration Agreement

In April 2024, we entered into a Collaboration and License Agreement, or the Astellas Collaboration Agreement, with Xyphos Biosciences, Inc., or Xyphos, a wholly-owned subsidiary of Astellas Pharma Inc., pursuant to which we granted to Xyphos (i) an exclusive license under certain of our intellectual property to conduct activities under two research plans, to create one CAR-T construct developed by us to form the basis of two convertibleCAR® product candidates targeting solid tumors, which will be generated by using both parties' platform technology, each a Research Product, where each Research Product will bind to a human tumor-associated antigen, and may also bind to a human antigen associated with a tumor microenvironment, (ii) an exclusive license under certain of our intellectual property after certain conditions are satisfied to develop, and commercialize up to two Research Products that have been designated as licensed products following receipt of the applicable IND-enabling data package, and (iii) an exclusive license under certain of our intellectual property after certain conditions are satisfied to manufacture the products once manufacturing technology transfer has been completed.

For each research plan, we will perform research and development activities through the generation of an IND-enabling data package and Xyphos is obligated to fully reimburse us for full-time equivalent costs and expenses incurred by us in our performance of certain activities, up to an agreed annual cap. Xyphos may request that we transfer the manufacturing process for a product to Xyphos, or that, subject to the payment of a fee, we manufacture the Allo-T Cells forming part of such product for use in the first Phase 1 trial of such product.

In consideration for the rights granted to Xyphos under the Astellas Collaboration Agreement, we received an upfront payment of $50.0 million, $6.0 million of which was advanced for our costs and expenses for our research and development activities. In addition, we are eligible to receive up to $550.0 million in potential development and sales milestone payments and contingency payments. We are further entitled to receive, on a product-by-product basis, tiered royalty payments up to the low teens as a percentage of net sales of licensed products. Royalties will be payable, on a product-by-product, during the period commencing on the first commercial sale of a product in a country until the latest of (a) the expiration of the licensed patents covering such product in such country, (b) the expiration of regulatory exclusivity for such product in such country and (c) a certain period of time following such first commercial sale of such product in such country.

The Astellas Collaboration Agreement will continue in effect on a product-by-product basis until there are no remaining royalty or other payment obligations for each such product. The Astellas Collaboration Agreement includes standard termination provisions, including for material breach or insolvency and for Xyphos's convenience. Certain of these termination rights can be exercised with respect to a particular country, licensed product, or research program, as well as with respect to the entire Astellas Collaboration Agreement.

Takeda Collaboration Agreement

In October 2021, we entered into a collaboration and license agreement, or the Takeda Collaboration Agreement, with Takeda Pharmaceuticals USA, Inc., or Takeda, under which we received an upfront payment of $45.0 million and R&D reimbursement payments throughout the agreement.

On May 31, 2023, we received written notice from Takeda of its election to terminate the Takeda Collaboration Agreement, effective July 30, 2023, or the Termination Date. Until the Termination Date, the parties performed their respective obligations under the Takeda Collaboration Agreement and upon the Termination Date, our exclusivity obligations under the Takeda Collaboration Agreement terminated. In addition, the licenses granted to Takeda by us, and the licenses granted to us by Takeda to perform research activities under the Takeda Collaboration Agreement terminated. We recognized $8.9 million of previously deferred revenue during the year ended December 31, 2023 in acknowledgement that these performance obligations are no longer required to be performed.

Upon termination we were granted full rights to develop all previously licensed programs, including P-FVIII-101 and P-PAH-101. We may seek new strategic collaborations in genetic medicines that could include some or all of the programs previously included in the Takeda Collaboration Agreement and potentially additional internal programs, although we have no present commitments or agreements to enter into any such strategic collaborations.

Strategic Agreement

Astellas Strategic Agreement

In August 2023, we entered into a series of agreements with Astellas US, LLC, or Astellas. Pursuant to a Securities Purchase Agreement between us and Astellas, or the Securities Purchase Agreement, we agreed to issue and sell to Astellas in a private placement, or the Private Placement, an aggregate of 8,333,333 shares of common stock, par value $0.0001 per share, or the Shares, at a purchase price of $3.00 per Share, for aggregate gross proceeds of $25.0 million. We also entered into a Registration Rights Agreement with Astellas, or the Registration Rights Agreement, pursuant to which we registered the resale by Astellas of the Shares and granted Astellas certain other registration rights, including piggyback registration rights.

We also entered into a Strategic Rights Letter with Astellas, or the Astellas Strategic Rights Letter, pursuant to which we agreed to the following: (i) grant Astellas the right to an observer seat on our board of directors, any committee of our board of directors, and our scientific advisory board; (ii) for a period of 18 months, grant Astellas a right of notification with respect to a Change in Control (as defined in the Astellas Strategic Rights Letter); (iii) during the period beginning on August 7, 2023, the closing date of the Private Placement, or the Closing Date, and ending on the 12-month anniversary of the Closing Date, or the Exclusivity Period, not to (1) solicit, knowingly encourage, negotiate or otherwise enter into *bona fide* discussions about a Program Transaction (as defined below) with any third party, (2) provide access to any of our confidential information relating to P-MUC1C-ALLO1, our fully allogeneic CAR-T product candidate for multiple solid tumor indications, or the Program, for purposes of knowingly facilitating a Program Transaction, or (3) enter into any letter of intent, contract or other commitment for an exclusive or co-exclusive license or co-promote or co-marketing arrangement or granting of commercial rights to sell, promote or market one or more products of the Program for any indication in the world, or a Program Transaction; (iv) provide notice to Astellas (1) if we receive a *bona fide* proposal for a Change in Control transaction from a third party, unless such proposal is rejected by our board of directors, or (2) of the commencement of a process approved by our board of directors for a Change in Control, (3) if we receive a *bona fide* proposal for a Program Transaction from a third party unless the proposal is rejected by our board of directors, or a Program Transaction Proposal, or, (4) following the Exclusivity Period, the commencement of substantive discussions for a Program Transaction with a third party in connection with a process approved by our board of directors for a Program Transaction, or a Program Process. In connection with a notice related to (x) a Program Transaction Proposal, Astellas shall have a right of first refusal to provide a competing proposal that is in aggregate more favorable to us than the Program Transaction Proposal, and thereby have a right to negotiate exclusively a possible Program Transaction for a specified period and (y) a Program Process, Astellas shall have a right of first offer to negotiate a Program Transaction for a specified period before we engage with any third party in meaningful substantive discussions, in each case, in accordance with the procedures and subject to the conditions set forth in the Astellas Strategic Rights Letter.

As partial consideration for the rights granted to Astellas under the Astellas Strategic Rights Letter, Astellas paid us a one-time payment in the amount of $25.0 million, or the Upfront Payment. In connection with a Change in Control transaction or Program Transaction between us and Astellas, some, all or none of the Upfront Payment may be offset against payments owed by Astellas in a tiered basis to us dependent on certain factors set forth in the Astellas Strategic Rights Letter.

The Astellas Strategic Rights Letter shall terminate upon the earliest to occur of (i) the 18-month anniversary of the Closing Date, (ii) such time that Astellas owns fewer than 8,000,000 shares of common stock (subject to adjustment for any stock splits, stock dividends or recapitalizations) and (iii) the consummation of a Change in Control.

In-License Agreements

Below is a summary of our key license agreements. For a more detailed description of these and our other license agreements, see the section titled "Business—In-License Agreements" and Note 12 to our annual consolidated financial statements included in our 2023 Annual Report.

- *2017 Commercial License Agreement with TeneoBio, Inc.* (a subsidiary of Amgen Inc.), 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.

- *2018 Commercial License Agreement with TeneoBio, Inc.* (a subsidiary of Amgen Inc.), or the 2018 TeneoBio Agreement, 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, including but not limited to the binders used in our P-CD19CD20-ALLO1 and P-PSMA-ALLO1 product candidates.
- *License Agreement with Xyone Therapeutics, Inc*. (as successor-in-interest to Genus Oncology, LLC), or the Xyone Agreement, pursuant to which we obtained an exclusive worldwide license under certain patents and a non-exclusive worldwide license under certain know-how controlled by Xyone to research, develop and commercialize pharmaceutical products incorporating CAR cells expressing antibodies and derivatives thereof targeting MUC1-C, or a Xyone licensed product, and a non-exclusive worldwide license under certain patents and know-how controlled by Xyone to research, develop and commercialize companion diagnostics for the treatment, prevention and palliation of human diseases and conditions. We use a Xyone antibody or derivative thereof targeting MUC1-C as a binder in our P-MUC1C-ALLO1 product candidate.
- *Amended and Restated License Agreement with HMGU,* or the HMGU License Agreement, 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 Helmholtz-Zentrum München—Deutsches Forschungszentrum für Gesundheit und Umwelt GmbH, or 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, P-MUC1C-ALLO1, P-CD19CD20-ALLO1 and our other planned allogeneic programs.

CIRM Grant Funding

In 2018, we were granted an award in the amount of $4.0 million from California Institute of Regenerative Medicine, or CIRM, of which we have received all proceeds, to support our preclinical studies for P-PSMA-101. The terms of this 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 grant agreement, we recorded the proceeds as a liability when received. In the third quarter of 2023, we made the decision to not pursue additional clinical or other development activities related to the P-PSMA-101 program, however there is no obligation to repay the amounts associated with the P-PSMA-101 program, and we derecognized the respective liability and recorded such amount in other income during the year ended December 31, 2023.

Components of Our Results of Operations

Revenues

Collaboration Revenue

Collaboration revenue consists of revenue recognized from our strategic, collaboration and license agreements with Roche, Astellas, Xyphos (an affiliate of Astellas), and Takeda and reflects the timing and pattern in which we deliver the contractual deliverables to such partners.

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, or CROs;
- 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;

- the cost of manufacturing clinical materials for use in our preclinical studies and clinical trials; 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, development and manufacturing functions;
- the cost to develop and maintain manufacturing capabilities at our San Diego facility for manufacturing of cell therapies for use in clinical trials; and
- facilities, depreciation and other expenses, consisting of direct and allocated expenses for rent and maintenance of facilities and insurance.

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 volume of service that has been performed at each reporting date. Upfront payments and milestone payments made for the licensing of technology are related to clinical stage programs and 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, for clinical stage programs, we track costs on a program-by-program basis, and for earlier stage work, including preclinical programs, we track these costs in the aggregate. However, as we continue advancing our allogeneic programs and wind-down our autologous programs and the aggregate amount of expenses for such autologous programs becomes immaterial, we plan to present research and development expenses attributable to such autologous programs on a consolidated basis. Our internal resources, employees and infrastructure, including our clinical manufacturing facility, 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 trial of P-MUCIC-ALLO1 for the treatment of patients with epithelial derived solid tumor cancers, Phase 1 trial of P-BCMA-ALLO1 for the treatment of patients with relapsed/refractory multiple myeloma, Phase 1 trial of P-CD19CD20-ALLO1 for the treatment of patients with B-cell malignancies and additional clinical programs expected to commence as we expand our pipeline of drug candidates. 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 additional 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 cost structure and timing associated with the development of respective product candidates. 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, of 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, and 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-MUC1C-ALLO1, P-BCMA-ALLO1 and P-CD19CD20-ALLO1, and begin to commercialize any approved products.

Other Income (Expense)

Interest Expense

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

Other Income, Net

Other income, net consists of interest income and miscellaneous income and expense unrelated to our core operations. Interest income is comprised of interest earned on our available-for-sale securities.

Results of Operations

Comparison of the Three Months Ended June 30, 2024 and 2023

The following table summarizes our results of operations (in thousands):

	Three Months Ended June 30,		
	2024	2023	Change
Revenues:			
Collaboration revenue	$ 25,973	$ 20,013	$ 5,960
Total revenue	25,973	20,013	5,960
Operating expenses:			
Research and development	45,547	39,192	6,355
General and administrative	12,182	8,676	3,506
Total operating expenses	57,729	47,868	9,861
Loss from operations	(31,756)	(27,855)	(3,901)
Other income (expense):			
Interest expense	(2,259)	(2,141)	(118)
Other income, net	2,644	2,540	104
Net loss	$ (31,371)	$ (27,456)	$ (3,915)

Collaboration Revenue

Collaboration revenue was $26.0 million for the three months ended June 30, 2024 compared to $20.0 million for the same period in 2023. The increase of $6.0 million was primarily due to a $17.0 million increase in revenue recognized from the license and research services performed under the Roche Collaboration Agreement driven by milestone recognition and an increase in reimbursed research and development expenses, offset by a decrease in revenue recognized under the Takeda Collaboration Agreement of $11.1 million due to the agreement terminating in 2023 and no remaining activity performed during the three months ended June 30, 2024.

Research and Development Expenses

The following table summarizes our research and development expenses (in thousands):

	Three Months Ended June 30,		
	2024	2023	Change
External costs:			
Clinical stage programs:			
Allogeneic programs:			
P-BCMA-ALLO1	$ 5,292	$ 2,588	$ 2,704
P-MUC1C-ALLO1	2,247	1,710	537
P-CD19CD20-ALLO1	923	—	923
Total allogeneic programs	8,462	4,298	4,164
Autologous programs	242	574	(332)
Total clinical stage programs	8,704	4,872	3,832
Preclinical stage programs and other unallocated expenses	14,492	11,777	2,715
Internal costs:			
Personnel	18,231	18,254	(23)
Facilities and other	4,120	4,289	(169)
Total research and development expenses	$ 45,547	$ 39,192	$ 6,355

Research and development expenses were $45.5 million for the three months ended June 30, 2024, compared to $39.2 million for the three months ended June 30, 2023. The increase in research and development expenses of $6.4 million was primarily due to an increase of $4.2 million in allogeneic clinical stage programs, driven mainly by an increase in overall enrollment of our allogeneic programs and the initiation of our third allogeneic clinical trial, P-CD19CD20-ALLO1, and an increase in preclinical stage programs and other unallocated expenses of $2.7 million, offset by a $0.3 million decrease driven by the wind-down of our autologous clinical development activities and a decrease of $0.2 million in facilities expense.

General and Administrative Expenses

General and administrative expenses were $12.2 million for the three months ended June 30, 2024, compared to $8.7 million for the three months ended June 30, 2023. The increase in general and administrative expenses of $3.5 million was primarily due to an increase of $3.1 million in personnel expenses, mainly caused by an increase in stock-based compensation expense driven by a one-time expense associated with the succession plan in which our former Chief Executive Officer became the Executive Chairman in 2024, and an increase of $0.7 million primarily due to increases in legal fees related to patent expense and the Astellas Collaboration Agreement executed in the second quarter of 2024.

Interest Expense

Interest expense was $2.3 million for the three months ended June 30, 2024, compared to $2.1 million for the three months ended June 30, 2023 and consisted of interest on the principal balance outstanding under our term loans with Oxford Finance LLC, or Oxford. The increase in interest expense of $0.2 million was primarily due to higher interest rates.

Other Income, Net

Other income, net was $2.6 million for the three months ended June 30, 2024, compared to $2.5 million for the three months ended June 30, 2023. The increase of $0.1 million was primarily due to higher interest rates available.

Comparison of the Six Months Ended June 30, 2024 and 2023

The following table summarizes our results of operations (in thousands):

	Six Months Ended June 30,		
	2024	2023	Change
Revenues:			
Collaboration revenue	$ 54,115	$ 30,356	$ 23,759
Total revenue	54,115	30,356	23,759
Operating expenses:			
Research and development	88,468	77,244	11,224
General and administrative	21,980	20,483	1,497
Total operating expenses	110,448	97,727	12,721
Loss from operations	(56,333)	(67,371)	11,038
Other income (expense):			
Interest expense	(4,512)	(4,169)	(343)
Other income, net	5,200	5,237	(37)
Net loss	$ (55,645)	$ (66,303)	$ 10,658

Collaboration Revenue

Collaboration revenue was $54.1 million for the six months ended June 30, 2024 compared to $30.4 million for the same period in 2023. The increase of $23.8 million was primarily due to a $25.6 million increase in revenue recognized from the license and research services performed under the Roche Collaboration Agreement driven by milestone recognition and an increase in reimbursed research and development expenses, and $11.9 million of revenue recognized from the Astellas Strategic Agreements, offset by a decrease in revenue recognized under the Takeda Collaboration Agreement of $13.7 million due to the agreement terminating in 2023 and no remaining activity performed during the six months ended June 30, 2024.

Research and Development Expenses

The following table summarizes our research and development expenses (in thousands):

	Six Months Ended June 30,		
	2024	2023	Change
External costs:			
Clinical stage programs:			
Allogeneic programs:			
P-BCMA-ALLO1	$ 10,364	$ 5,051	$ 5,313
P-MUC1C-ALLO1	4,267	2,920	1,347
P-CD19CD20-ALLO1	2,259	—	2,259
Total allogeneic programs	16,890	7,971	8,919
Autologous programs	511	1,246	(735)
Total clinical stage programs	17,401	9,217	8,184
Preclinical stage programs and other unallocated expenses	26,494	23,968	2,526
Internal costs:			
Personnel	36,392	35,870	522
Facilities and other	8,181	8,189	(8)
Total research and development expenses	$ 88,468	$ 77,244	$ 11,224

Research and development expenses were $88.5 million for the six months ended June 30, 2024, compared to $77.2 million for the six months ended June 30, 2023. The increase in research and development expenses of $11.2 million was primarily due to an increase of $8.9 million in allogeneic clinical stage programs, driven mainly by an increase in overall enrollment of our allogeneic programs and the initiation of our third allogeneic clinical trial, P-CD19CD20-ALLO1, an increase in preclinical stage programs and other unallocated expenses of $2.5 million, and an increase of $0.5 million in personnel expenses as a result of annual compensation adjustments and equity grants, offset by a $0.7 million decrease driven by the wind-down of our autologous clinical development activities.

General and Administrative Expenses

General and administrative expenses were $22.0 million for the six months ended June 30, 2024, compared to $20.5 million for the six months ended June 30, 2023. The increase in general and administrative expenses of $1.5 million was primarily due to an increase of $1.2 million primarily due to increases in legal fees related to patent expenses and the Astellas Collaboration agreement executed in the second quarter of 2024, an increase of $1.0 million in personnel expenses, mainly caused by an increase in headcount and annual compensation adjustments and equity grants, offset by a decrease of $0.5 million in D&O insurance costs.

Interest Expense

Interest expense was $4.5 million for the six months ended June 30, 2024, compared to $4.2 million for the six months ended June 30, 2023. The increase in interest expense of $0.3 million was primarily due to higher interest rates.

Other Income, Net

Other income, net was $5.2 million for each of the six months ended June 30, 2024 and 2023. The change between the comparative periods was flat.

Liquidity and Capital Resources

Since our inception in 2014, we have incurred significant operating losses and negative cash flows from operations and have relied on our ability to fund our operations primarily through equity and debt financings and strategic collaborations. For the six months ended June 30, 2024 we have incurred a net loss of $55.6 million, and positive cash flows from operations of $23.3 million. We expect to continue to incur net losses and that we will incur negative cash flows from operations for at least the next several years. As of June 30, 2024, we had an accumulated deficit of $649.9 million.

Our operations to date 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 genetic 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 our operating expenses, which consist primarily of research and development expenditures including payroll and external costs associated with our preclinical and clinical stage programs, 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, debt financings and strategic collaborations. Since our inception, we have raised $305.4 million of gross proceeds from the sale of our common stock in our public offerings, $334.3 million of gross proceeds from the sale of shares of our redeemable convertible preferred stock, received $60.0 million of gross proceeds from borrowings under our loan agreement and received an aggregate of $23.8 million in grant funding from CIRM. In the fourth quarter of 2021, we entered into the Takeda Collaboration Agreement and received an upfront payment of $45.0 million. In the third quarter of 2022, we entered into the Roche Collaboration Agreement and received an upfront payment of $110.0 million. In the third quarter of 2023, we entered into the Securities Purchase Agreement and the Astellas Strategic Rights Letter, receiving a one-time payment of $50.0 million. In the second quarter of 2024, we entered into the Astellas Collaboration Agreement, receiving an upfront payment of $50.0 million.

We expect that our cash, cash equivalents and short-term investments as of June 30, 2024, of $237.8 million will be sufficient to fund our operations for at least the next twelve months from the date of issuance of the financial statements included in this Quarterly

Report on Form 10-Q. In the long term, we will need additional financing to support our continuing operations and pursue our growth strategy.

We do not expect to generate any revenues from product sales unless and until we successfully complete development and obtain regulatory approval for P-MUC1C-ALLO1 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 activities. 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 potential 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 public health crises, current financial conditions within the banking industry, liquidity levels as well as recent or anticipated changes in interest rates and economic inflation, there can be 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.

Loan Agreement

In 2017, we entered into a loan and security agreement with Oxford, as subsequently amended, or the Amended Loan Agreement, for a total outstanding balance of $30.0 million.

In February 2022, we entered into a new Loan and Security Agreement, or the 2022 Loan Agreement, with Oxford. Pursuant to the terms of the 2022 Loan Agreement, we borrowed $60.0 million in term loans, a portion of which was used to repay the balance outstanding under the Amended Loan Agreement. Under the 2022 Loan Agreement the initial interest-only period is through April 1, 2025, followed by 23 equal monthly payments of principal and applicable interest. In September 2022, a qualifying equity event, as defined in the 2022 Loan Agreement, was achieved which extended the interest-only period through April 1, 2026, followed by 11 equal monthly payments of principal and applicable interest. As a result, all amounts outstanding under the 2022 Loan Agreement will mature on February 1, 2027.

As the London Interbank Offered Rate ("LIBOR") ceased publication on June 30, 2023, we now utilize the Secured Overnight Financing Rate ("SOFR") to calculate the amount of accrued interest on our borrowings. 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.

The balance outstanding under the 2022 Loan Agreement bore interest at a floating per annum rate equal to 7.83% plus the greater of (a) the 30-day USD LIBOR rate and (b) 0.11%. The 2022 Loan Agreement included a provision addressing replacement of LIBOR with an alternate benchmark rate, when LIBOR was phased out on June 30, 2023. Effective July 1, 2023, the balance outstanding under the 2022 Loan Agreement bears interest at a floating per annum rate equal to the greater of (a) 7.94% and (b) the sum of (i) the 1-Month CME Term SOFR on the last business day of the month that immediately precedes the month in which the interest will accrue, (ii) 0.10% and (iii) 7.83%. As of June 30, 2024, the interest rate applicable to our Term Loans borrowing was 13.26%.

We have an option to repay the outstanding debt under the 2022 Loan Agreement at any time in increments of $5.0 million, with no prepayment penalty. Consistent with the Amended Loan Agreement, there is a 7.5% final payment fee payable on the earlier of (i) the new maturity date, (ii) acceleration of the new loan, or (iii) the prepayment of the new loan.

Cash Flows

The following table sets forth the primary sources and uses of cash and cash equivalents (in thousands):

	Six Months Ended June 30,	
	2024	2023
Cash provided by (used in) operating activities	$ 23,315	$ (71,311)
Cash provided by (used in) investing activities	(37,199)	38,658
Cash provided by (used in) financing activities	(43)	1,186
Net decrease in cash and cash equivalents	$ (13,927)	$ (31,467)

Cash Provided by (Used in) Operating Activities

During the six months ended June 30, 2024, net cash provided by operating activities was $23.3 million, primarily resulting from our net loss of $55.6 million, offset by a net cash increase from changes in our operating assets and liabilities of $66.2 million and non-cash expenses of $12.8 million. Net cash increase from changes in our operating assets and liabilities for the six months ended June 30, 2024 consisted primarily of a $70.4 million increase in deferred revenue, driven primarily by the upfront payment received at the inception of the Astellas Collaboration Agreement and developmental milestones received under the Roche Collaboration Agreement, and a $1.8 million decrease in operating lease right-of-use assets, and a $0.9 million decrease in prepaid expenses and other current assets, partially offset by a $3.4 million increase in accounts receivable due to increase in reimbursed revenue earned, a $2.0 million decrease in operating lease liabilities, a $1.3 million decrease in accrued expenses and other liabilities, and a $0.3 million decrease in accounts payable. Non-cash charges consisted primarily of $13.0 million in stock-based compensation, $2.7 million in depreciation and amortization expense, and $0.5 million in accretion of discount on issued term debt, partially offset by $3.5 million in accretion of discount on investment securities, net.

During the six months ended June 30, 2023, net cash used in operating activities was $71.3 million, primarily resulting from our net loss of $66.3 million and a net cash decrease from changes in our operating assets and liabilities of $16.8 million, partially offset by non-cash expenses of $11.8 million. Net cash decrease from changes in our operating assets and liabilities for the six months ended June 30, 2023 consisted primarily of a $12.4 million decrease in deferred revenue, a $4.6 million decrease in accrued expenses and other liabilities, a $2.8 million increase in accounts receivable, and a $1.8 million decrease in operating lease liabilities, partially offset by a $3.2 million decrease in prepaid expenses and other current assets, and a $1.7 million increase in operating lease right-of-use assets. Non-cash charges consisted primarily of $13.0 million in stock-based compensation and $2.7 million in depreciation and amortization expense, partially offset by $4.2 million in accretion of discount on investment securities, net.

Cash Provided by (Used in) Investing Activities

During the six months ended June 30, 2024, cash used in investing activities was $37.2 million, consisting of $156.1 million in purchases of short-term investments and $1.1 million in purchases of property and equipment, partially offset by $120.0 million in proceeds from maturities of short-term investments.

During the six months ended June 30, 2023, cash provided by investing activities was $38.7 million, consisting of $150.0 million in proceeds from maturities of short-term investments, partially offset by $109.4 million in purchases of short-term investments and $2.0 million in purchases of property and equipment.

The timing of purchases and sales of our investments is driven by available cash balance and maturity of existing investments. The purchase of property and equipment for all periods related to equipment purchases as we expanded our research and development and manufacturing activities, in addition to corporate office space.

Cash Provided by (Used in) Financing Activities

During the six months ended June 30, 2024, net cash used in financing activities was $43 thousand, consisting of $0.6 million of the taxes paid related to net share settlement of equity awards, partially offset by $0.5 million of proceeds from purchases under our ESPP and exercises of stock options.

During the six months ended June 30, 2023, net cash provided by financing activities was $1.2 million, consisting of $0.9 million net proceeds from periodic issuances and sales of our common stock under the Controlled Equity Offering^{SM} Sales Agreement with Cantor Fitzgerald & Co., $0.8 million of net proceeds from purchases under our 2020 Employee Stock Purchase Plan and exercises of stock options, partially offset by $0.5 million of the taxes paid related to net share settlement of equity awards.

Contractual Obligations and Commitments

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. The amount and timing of such payments are not known.

We have also entered into 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. The payment obligations under these license agreements are contingent upon future events, such as our achievement of specified milestones or generating product sales. We record these milestone payments when they are estimable and probable to be achieved. Estimating the timing or likelihood of achieving these milestones or generating future product sales requires significant judgment and is subject to uncertainty.

During the six months ended June 30, 2024, there were no significant changes to our contractual obligations and commitments described under Management's Discussion and Analysis of Financial Condition and Results of Operations in our 2023 Annual Report.

Critical Accounting Policies and Significant Judgments and Estimates

Management's discussion and analysis of our financial condition and results of operations are based upon our financial statements, which are prepared in accordance with accounting principles that are generally accepted in the United States. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets and liabilities, related disclosure of contingent liabilities at the date of the financial statements, and the reported amounts of expenses and other income during the reporting period. We continually evaluate our estimates and judgments, the most critical of which are those related to revenue recognition, preclinical and clinical study accruals and stock-based compensation costs. We base our estimates and judgments on historical experience and other factors that we believe to be reasonable under the circumstances. Materially different results can occur as circumstances change and additional information becomes known.

There were no significant changes during the six months ended June 30, 2024 to the items that we disclosed as our critical accounting policies and estimates in Note 2 to our audited consolidated financial statements included in our 2023 Annual Report.

JOBS Act

We are an emerging growth company, as defined in Section 2(a) of the Securities Act of 1933, as amended, or the Securities Act, as modified by the Jumpstart Our Business Startups Act of 2012, or the 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 (i) are no longer an emerging growth company or (ii) 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. The JOBS Act also allows us to take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies, including relief from the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended, less extensive disclosure obligations regarding executive compensation in our registration statements, periodic reports and proxy statements, exemptions from the requirements to hold a nonbinding advisory vote on executive compensation, and exemptions from stockholder approval of any golden parachute payments not previously approved. We may also elect to take advantage of other reduced reporting requirements in future filings. As a result, our stockholders may not have access to certain information that they may deem important and the information that we provide to our stockholders may be different than, and not comparable to, information presented by other public reporting companies.

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 $1.235 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) December 31, 2025.

We are also a smaller reporting company, as defined in the Securities Exchange Act of 1934. We may continue to be a smaller reporting company even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies and will be able to take advantage of these scaled disclosures for so long as (i) our voting and non-voting common stock held by non-affiliates is less than $250.0 million measured on the last business day of our second fiscal quarter or (ii) our annual revenue is less than $100.0 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is less than $700.0 million measured on the last business day of our second fiscal quarter.

Recent Accounting Pronouncements

A description of recently issued accounting pronouncements that may potentially impact our financial position, results of operations or cash flows is disclosed in Note 2 to our condensed consolidated financial statements.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

Interest Rate Risk

As of June 30, 2024, we had cash, cash equivalents and short-term investments of $237.8 million. 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.

As of June 30, 2024, we had $60.0 million of borrowings outstanding under the 2022 Loan Agreement, bearing interest at a variable rate equal to the greater of (a) 7.94% and (b) the sum of (i) the 1-Month CME Term SOFR on the last business day of the month that immediately precedes the month in which the interest will accrue, (ii) 0.10% and (iii) 7.83%. 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.

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.

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.

Item 4. Controls and Procedures.

Disclosure Controls and Procedures

We are responsible for maintaining disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, or the Exchange Act. Disclosure controls and procedures are controls and other procedures designed to ensure that the information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized, and reported, within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is accumulated and communicated to our management, including our Principal Executive Officer and Principal Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Based on our management's evaluation, the Principal Executive Officer and Principal Financial Officer have concluded that our disclosure controls and procedures were effective as of June 30, 2024.

Changes in Internal Control Over Financial Reporting

There have been no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the quarter ended June 30, 2024 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1. 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.

Item 1A. Risk Factors

An investment 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 Quarterly Report on Form 10-Q, including our condensed consolidated financial statements and the related notes and in the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" before deciding whether to purchase, hold or sell shares of 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 Quarterly Report on Form 10-Q 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." The risk factors set forth below with an asterisk (*) next to the title contain changes to the description of the risk factors associated with our business previously disclosed in Item 1A of our 2023 Annual Report on Form 10-K for the year ended December 31, 2023.

Summary of Risks Associated with Our Business

Below is a summary of the principal factors that make an investment in our securities speculative or risky. This summary does not address all of the risks that we face. Additional discussion of the risks summarized in this risk factor summary, and other risks that we face, can be found below this risk factor summary and should be carefully considered.

- We are a clinical-stage cell therapy and genetic medicines 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 will need to obtain substantial additional funding to complete the development and 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.
- 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.
- 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.
- Our business is highly dependent on the success of our lead product candidates. If we are unable to advance clinical development, obtain approval of and successfully commercialize our lead product candidates for the treatment of patients in approved indications, our business would be significantly harmed.
- 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.
- 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 operate a clinical manufacturing facility to develop and manufacture preclinical and clinical materials for all of our CAR-T product candidates which requires significant resources. A failure to successfully operate our clinical manufacturing facility could lead to substantial delays and adversely affect our research and development efforts, including clinical trials, and the future commercial viability, if approved, of our CAR-T product candidates.

- 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.
- Our collaborators may not devote sufficient resources to the development or commercialization of our product candidates or may otherwise fail in development or commercialization efforts, which could adversely affect our ability to develop or commercialize certain of our product candidates and our financial condition and operating results.
- 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 face substantial competition, which may result in others discovering, developing or commercializing products more quickly or marketing them more successfully than us.
- 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.
- 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.

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

**** We are a clinical-stage cell therapy and genetic medicines 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 cell therapy and genetic medicines 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 six months ended June 30, 2024 and 2023, we have incurred a net loss of $55.6 million and $66.3 million, respectively. As of June 30, 2024, we had an accumulated deficit of $649.9 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' equity 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 relatively 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 our 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.

**** We will need to obtain substantial additional funding to complete the development and 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.

As of June 30, 2024, we had $237.8 million in cash, cash equivalents and short-term investments. Based upon our current operating plan, we believe that our existing cash, cash equivalents and short-term investments will enable us to fund our operations through at least the next 12 months. However, our current cash, cash equivalents and short-term investments 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.

Additional capital may be obtained through equity offerings and/or debt financings, or from other potential sources of liquidity, which may include new or existing collaborations, licensing or other commercial agreements for one or more of our research programs or patent portfolios. Adequate funding, if needed, may not be available to us on acceptable terms, or at all. Our ability to obtain additional funds may be adversely impacted by civil and political unrest in certain countries and regions, potential worsening global economic conditions and the disruptions to, and volatility in, the credit and financial markets in the United States and worldwide resulting from public health crises. If we are unable to raise capital when needed or on attractive terms, we would be forced to delay, reduce, or eliminate our research development programs or other operations. If any of these events occur, our ability to achieve our operational goals would be materially and adversely affected. Our future capital requirements and the adequacy of available funds will depend on many factors, including those described in “Risk Factors.” Depending on the severity and direct impact of these factors on us, we may be unable to secure additional financing to meet our operating requirements on terms favorable to us, or at all.

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 exhaust 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, 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 operating our clinical 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. Changes in interest rates and economic inflation on capital markets may affect the availability, amount and type of financing available to us in the future. On August 13, 2021, we entered into a Controlled Equity Offering[SM] Sales Agreement, which was amended and restated on August 5, 2024, or the Sales Agreement, with Cantor Fitzgerald & Co., or Cantor, to sell shares of common stock, from time to time, through an “at the market offering” program having an aggregate offering price of up to $85.0 million through which Cantor would act as sales agent. There can be no assurance that we will continue to meet the requirements to be able to sell securities pursuant to the Sales Agreement, of if we meet the requirements that we will be able to raise sufficient funds on favorable terms. 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.

**** 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.***

As of June 30, 2024, we have an outstanding term loan in the principal amount of $60.0 million under our loan and security agreement 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. The affirmative covenants include, among others, covenants requiring us 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 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, among other default triggers, 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. In November 2021, we made the decision to wind-down clinical development of our P-BCMA-101 program, which was the first of our product candidates to have been tested in humans. In November 2022, we announced the decision to wind-down clinical development of our P-PSMA-101 program, our first solid tumor clinical trial. We initiated Phase 1 clinical trials for P-BCMA-ALLO1 and P-MUC1C-ALLO1 in late 2021 and recently initiated the Phase 1 trial for P-CD19CD20-ALLO1 in late 2023. 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 product 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 and maintaining 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.

**** 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, some studies have suggested that gene editing using the CRISPR-Cas9 method may increase the risk that the edited cells themselves become cancerous, and in October 2021, discovery of a chromosomal abnormality of unknown clinical significance resulted in a full clinical hold on the programs of one of our competitors utilizing the TALEN method. In January 2024, the FDA announced that it was requiring the boxed warnings regarding the risk of secondary T-cell malignancies with CAR-T therapies. Regardless of our belief that our non-viral Cas-CLOVER approach to gene editing may avoid some of these issues, it is possible that our approach will be associated with similar risks or that issues encountered with other gene editing techniques or CAR-T therapies 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. For example, in response to FDA feedback to our IND for P-BCMA-ALLO1, we were required to update certain assay release criteria unique to an allogeneic product candidate. While implementation did not impact our clinical timelines, there can be no assurance that it, or similar regulatory requirements would not do so in the future, and any such delays could materially and adversely affect our business, financial condition, results of operations and future growth prospects.

Our business is highly dependent on the success of our lead product candidates. If we are unable to advance clinical development, obtain approval of and successfully commercialize our lead product candidates for the treatment of patients in approved indications, our business would be significantly harmed.

Our business and future success depends on our ability to advance clinical development, obtain regulatory approval of, and then successfully commercialize our lead product candidates. Because our three allogeneic CAR-T product candidates, P-BCMA-ALLO1, P-MUC1C-ALLO1 and P-CD19CD20-ALLO1, are among the first allogeneic products to be evaluated in the clinic, the failure of any such product candidates, or the failure of other allogeneic cell therapy programs, including for reasons due to safety, efficacy or durability, may impede our ability to develop our product candidates, and significantly influence public and investor opinion in regard to the viability of our pipeline of allogeneic cell therapy programs. All of our product candidates, including our lead product candidates, will require additional clinical and non-clinical development, regulatory review and approval in multiple jurisdictions, substantial investment, continued access to sufficient clinical and eventually commercial manufacturing capacity and significant marketing efforts before we can generate any revenue from product sales. In addition, because our other product candidates are based on similar technology as our lead product candidates, if any of the lead product candidates encounters additional safety issues, efficacy problems, manufacturing problems, developmental delays, regulatory issues or other problems, our development plans and business would be significantly harmed.

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 our product candidates in a limited number of patients with cancer and the majority of 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 cytokine release syndrome, or CRS, which in some instances resulted in neurotoxicity and patient deaths. While we have observed relatively limited instances of CRS or neurotoxicity in our clinical trials in our allogeneic programs as of the date of this filing, we may observe greater rates of these or other adverse events in higher doses of our existing trials or future CAR-T programs. 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. In August 2020, we announced our P-PSMA-101 trial was placed on clinical hold to evaluate the death of a patient, which may have been related to treatment with P-PSMA-101. In November 2020 we announced that the FDA had lifted the clinical hold based upon our investigation of the event and proposed protocol amendments intended to increase patient compliance and safety, and we resumed the trial. We could observe similar patient deaths or other adverse events that require other trials to be suspended or terminated, which could represent a substantial setback to such programs.

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 Risk Evaluation and Mitigation Strategy, or 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.

Negative public opinion and increased regulatory scrutiny of genetic research and therapies involving gene editing may damage public perception of our product candidates or adversely affect our ability to conduct our business or obtain regulatory approvals for our product candidates.

The gene editing technologies that we use are novel. Public perception may be influenced by claims that gene editing is unsafe, and products incorporating gene editing may not gain the acceptance of the public or the medical community. This may lead to our manufacturing efforts or gene editing technologies to be scrutinized or viewed as unsafe. Our success will depend upon physicians specializing in our targeted diseases prescribing our product candidates, if approved, as treatments in lieu of, or in addition to, existing, more familiar, treatments for which greater clinical data may be available. Any increase in negative perceptions of gene editing may result in fewer physicians prescribing our treatments or may reduce the willingness of patients to utilize our treatments or participate in clinical trials for our product candidates.

In addition, given the novel nature of gene editing and cell therapy technologies, governments may place import, export or other restrictions in order to retain control or limit the use of the technologies. Increased negative public opinion or more restrictive government regulations either in the United States or internationally, would have a negative effect on our business or financial condition and may delay or impair the development and commercialization of our product candidates or demand for such product candidates.

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. In August 2020, we announced the P-PSMA-101 trial was put on clinical hold to assess a patient death. This clinical hold was lifted in November 2020 with the implementation of protocol amendments intended to increase patient compliance and safety that included modified inclusion and exclusion criteria and frequency of monitoring and laboratory testing. In addition, due primarily to the observation of anti-drug antibodies in some patients in our first clinical trial, P-BCMA-101, we explored additional dosing strategies, such as administering the doses in smaller cycles in the first 30 days and adding rituximab to the preconditioning regimen to potentially suppress any antibody response. 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 other dosing strategies for advancement in any of our clinical trials, it may be on the basis of more limited data as compared to the previously evaluated Phase 1 cohorts. Other than P-BCMA-101, P-PSMA-101 and our current clinical trials, none of our product candidates have ever been tested in humans. We have only recently initiated clinical trials for our first three allogeneic CAR-T product candidates, P-BCMA-ALLO1, P-MUC1C-ALLO1 and P-CD19CD20-ALLO1. While we have applied learnings from our autologous P-BCMA-101 product candidate in our development of P-BCMA-ALLO1, we cannot be certain that these learnings will be applicable to the allogeneic program or that we will not encounter unexpected results dosing P-BCMA-ALLO1, P-MUC1C-ALLO1 or P-CD19CD20-ALLO1 in our clinical trials. 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 genetic medicine 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 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 our liver directed investigational genetic medicines candidates until we complete certain preclinical development and submit and receive authorization to proceed under INDs. While we announced FDA clearance for our IND for P-BCMA-ALLO1 in August 2021, our IND for P-MUC1C-ALLO1 in December 2021 and our IND for P-CD19CD20-ALLO1 in July 2023, we are dependent on clinical sites to continue enrolling patients. We announced in August 2020 our

P-PSMA-101 trial was put on clinical hold to assess a patient death. In November 2020 we announced that the FDA had lifted the clinical hold based upon our investigation of the event and proposed protocol amendments intended to increase patient compliance and safety. While we were able to resume the trial, a similar hold in other trials could delay the ultimate completion of the trial. 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, 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, certain clinical trial services agreements are based on fees that do 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.

If we experience delays or difficulties in the enrollment of patients in our clinical trials, our receipt of necessary regulatory approvals could be delayed or prevented.

We or our collaborators may not be able to initiate or continue clinical trials for any product candidates we identify or develop if we are unable to locate and enroll a sufficient number of eligible patients to participate in these trials as required by the FDA, the EMA or any other comparable regulatory authority, or as needed to provide appropriate statistical power for a given trial. Enrollment may be particularly challenging for certain of the rare diseases we are targeting in our programs. In addition, if patients are unwilling to participate in our trials due to negative publicity from adverse events related to the cell therapy, gene therapy, or gene editing fields, competitive clinical trials for similar patient populations, clinical trials in competing products, or for other reasons, the timeline for recruiting patients, conducting studies, and obtaining regulatory approval of any product candidates we may develop may be delayed. Moreover, some of our competitors currently and may in the future, have ongoing clinical trials for product candidates that treat the same indications as product candidates we are developing and may develop in the future, and patients who would otherwise be eligible for our clinical trials may instead enroll in clinical trials of our competitors' product candidates.

Clinical trial patient enrollment is also affected by other factors, including severity of the disease under investigation; size of the patient population and process for identifying patients; design of the trial protocol; the risk that enrolled patients will drop out before completion of the trial availability; efficacy of approved medications for the disease under investigation; our ability to obtain and maintain patient informed consent; eligibility and exclusion criteria for the trial in question; our ability to monitor patients adequately during and after treatment; and proximity and availability of clinical trial sites for prospective patients, especially for those diseases which have more limited patient populations.

Enrollment delays in our clinical trials may result in increased development costs for any product candidates we may develop, which would cause the value of our company to decline and limit our ability to obtain additional financing. If we or our collaborators have difficulty enrolling a sufficient number of patients to conduct our clinical trials as planned, we may need to delay, limit, or terminate ongoing or planned clinical trials, any of which would have an adverse effect on our business, financial condition, results of operations, and prospects.

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. 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 receive or realize the potential benefits of orphan drug designation for any of our product candidates.***

We may seek orphan drug designation for certain of our product candidates. 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. While we received orphan drug designation for P-BCMA-101 and P-BCMA-ALLO1 for the treatment of relapsed/refractory multiple myeloma, we may not receive this designation for any other product candidates in the future. 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 may seek Regenerative Medicine Advanced Therapy, or RMAT, designation for certain of our product candidates; however, even if granted, 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 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. While we previously received RMAT designation for P-BCMA-101 for the treatment of relapsed/refractory multiple myeloma, if we apply, we may not receive this designation for any other product candidate in the future. 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 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. 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 certain of the indications our product candidates are designed to treat, and because additional drugs may be approved for these indications while we

are developing our product candidates, it is difficult to predict whether accelerated approval will be possible for our product candidates at the time we expect to submit a BLA.

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 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 clinical manufacturing facility, 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. 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, the FDA postponed most foreign and domestic inspections of manufacturing facilities and products for several months during 2020 and only resumed them on a risk-based basis, incorporating remote monitoring methods as well. Regulatory authorities outside the United States adopted similar restrictions and policy measures in response to the COVID-19 pandemic. If a prolonged government shutdown occurs, or if global health concerns 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 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. 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 terminate 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 operate a clinical manufacturing facility to develop and manufacture preclinical and clinical materials for all of our CAR-T product candidates which requires significant resources. A failure to successfully operate our clinical manufacturing facility could lead to substantial delays and adversely affect our research and development efforts, including clinical trials, and the future commercial viability, if approved, of our CAR-T product candidates.

Our clinical manufacturing facility is validated, qualified and fully operational. While we will continue to source raw materials from external CMOs, we made the transition manufacturing from external CMOs to our clinical manufacturing facility and we expect our clinical manufacturing facility to be the sole source supplier of clinical materials for our clinical trials, including P-BCMA-ALLO1, P-MUC1C-ALLO1 and P-CD19CD20-ALLO1. This sole source reliance increases the risk that we will not have sufficient quantities of our CAR-T product candidates at an acceptable cost or quality, which could delay, prevent or impair our development or commercialization efforts, if approved. If we are unable to manufacture sufficient preclinical or clinical materials at our clinical manufacturing facility we may be forced to contract with external CMOs, which we may not be able to do on commercially reasonable terms, if at all. Even if commercially reasonable terms are available, any transition of manufacturing from our clinical manufacturing facility to an external CMO could be time-consuming and 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 CAR-T product candidates may be unique or proprietary and we may have difficulty transferring such skills or technology to another CMO and a feasible alternative may not exist. If we fail to manufacture at our clinical manufacturing facility, or obtain from a CMO, a sufficient supply of clinical materials for our clinical trials in accordance with applicable specifications on a timely basis, our research and development efforts, including clinical trials, the future commercial viability, if approved, of our CAR-T product candidates, and our business, financial condition, results of operations and growth prospects could be materially adversely affected.

We or the third parties on which we rely for the manufacturing and supply of certain of our product candidates for use in preclinical testing and clinical trials, may not be able to establish or maintain supply of our product candidates that is of satisfactory quality and quantity.

We produce in our laboratory relatively small quantities of product for evaluation in our research programs. We have relied on, and will continue to rely on, third parties for the manufacture of certain of our product candidates for preclinical and clinical testing and may rely on such third parties for commercial manufacture if any of our product candidates are approved. 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 ourselves and 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, we may be forced to manufacture the materials ourselves, for which we may 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 or maintain compliance with cGMP manufacturing standards 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.

Additionally, some of our vendors and suppliers are located in China or operated by Chinese biotechnology companies. Trade tensions and conflict between the United States and China have been escalating in recent years and, as such, we are exposed to the possibility of product supply disruption and increased costs and expenses in the event of changes to the laws, rules, regulations, and policies of the governments of the United States or China, or due to geopolitical unrest and unstable economic conditions. Certain Chinese biotechnology companies may become subject to trade restrictions, sanctions, other regulatory requirements, or proposed legislation by the U.S. Government, which could restrict or even prohibit our ability to work with such entities, thereby potentially disrupting their supply of material to us. Such disruption could have adverse effects on the development of our product candidates and our business operations. In addition, the recently proposed BIOSECURE Act introduced in House of Representatives, as well as a substantially similar bill in the Senate, targets certain Chinese biotechnology companies. If these bills become law, or similar laws are passed, they would have the potential to severely restrict the ability of companies to contract with certain Chinese biotechnology companies of concern without losing the ability to contract with, or otherwise receive funding from, the U.S. government.

Manufacturing genetically 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 genetically engineered products is complex and may require the use of innovative technologies to handle living cells. Manufacturing these products requires facilities specifically designed 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. 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 availability of coverage and adequate reimbursement from third party payors;
- 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. 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. 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, the Centers for Medicare & Medicaid Services, or 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 our 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 educate an adequate number of physicians regarding the benefits of any product, once approved;
- 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-ALLO1, P-CD19CD20-ALLO1 and P-PSMA-ALLO1, we have licensed heavy-chain-only binders under agreements with TeneoBio, Inc. (a subsidiary of Amgen Inc.), or TeneoBio, with respect to P-MUC1C-ALLO1, we have licensed a binder under our agreement with Xyone Therapeutics, Inc. (a successor-in-interest to Genus Oncology, LLC), or Xyone, with respect to our additional dual CAR programs and other allogeneic preclinical programs we have licensed and may continue to 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-CD19CD20-ALLO1 and future allogeneic products, we have licensed certain intellectual property under an agreement with HMGU. If we fail to comply with the obligations under our license agreements 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 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.

**** Our collaborators may not devote sufficient resources to the development or commercialization of our product candidates or may otherwise fail in development or commercialization efforts, which could adversely affect our ability to develop or commercialize certain of our product candidates and our financial condition and operating results.***

We have, with respect to our collaboration with Roche, and will likely have, with respect to any additional collaboration arrangements with any third parties, limited control over the amount and timing of resources that our collaborators dedicate to the development or commercialization of our product candidates. For example, Takeda made a recent internal shift in strategy away from AAV, gene therapy and rare hematology, which led to the termination of our collaboration with Takeda. In addition, while we expect to collaborate with Roche on the development of up to ten allogeneic CAR-T cell therapy programs, only two such programs have been designated by Roche and we cannot guarantee that Roche will elect to pursue development of additional cell therapy programs under the Roche Collaboration Agreement. A decision by Roche to pursue less than the maximum number of targets or programs available for collaboration under the collaboration agreement would limit the potential payments we may receive under the Roche Collaboration Agreement, delay our development timelines or otherwise adversely affect our business. In general, our ability to generate revenues from this arrangement will depend on our collaborators' ability to successfully perform the functions assigned to them in this arrangement and otherwise to comply with their contractual obligations.

Any of our existing or future collaborations may not ultimately be successful, which could have a negative impact on our business, results of operations, financial condition and growth prospects. In addition, the terms of any such collaboration or other arrangement may not prove to be favorable to us or may not be perceived as favorable, which may negatively impact the trading price of our common stock. In some cases, we may be responsible for continuing development or manufacture of a product or product candidate or research program under collaboration and the payment we receive from our partner may be insufficient to cover the cost of this development or manufacture of product. For example, under the Roche Collaboration Agreement, while Roche is obligated to reimburse us for a specified percentage of certain costs incurred in performance of development activities relating to P-CD19CD20-ALLO1, we will be responsible for the balance and the amount Roche is obligated to reimburse us is subject to a maximum cap. Similarly, under the Astellas Collaboration Agreement, certain costs incurred in performance of development activities related to both research programs will be reimbursed, but are subject to a maximum cap per fiscal year and per target.

Conflicts may arise between us and our collaborators, such as conflicts concerning the interpretation of clinical data, the achievement of milestones, the division of development responsibilities or expenses, development plans, the interpretation of financial provisions, or the ownership of intellectual property developed during the collaboration. If any such conflicts arise, a collaborator could act in its own self-interest, which may be adverse to our best interests. Any such disagreement between us and a collaborator could delay or prevent the development or commercialization of our product candidates.

Further, we are subject to the following additional risks associated with our current and any future collaborations with third parties, the occurrence of which could cause our collaboration arrangements to fail:

- collaborators may not pursue development and commercialization of our product candidates or may elect not to continue or renew development or commercialization programs based on clinical trial results, changes in the collaborator's strategic focus or available funding or external factors such as an acquisition that diverts resources or creates competing priorities;
- collaborators may enter into arrangements with our competitors and may prioritize their own programs or those of third parties, over ours;
- collaborators may not always be cooperative or responsive in providing their services in clinical trials, may fail in their development or commercialization efforts with our product candidate, in which event the development and commercialization of such product candidate could be delayed or terminated;
- collaborators may delay clinical trials, insufficiently fund a clinical trial program, stop a clinical trial, abandon a product candidate, repeat or conduct new clinical trials, or require a new formulation of a product candidate for clinical testing;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our products or product candidates if the collaborators believe that competitive products are more likely to be successfully developed or can be commercialized under terms that are more economically attractive than ours;
- collaborators may fail to successfully design or implement clinical trials and may collect and publish clinical trial data that are inconsistent with, or contradictory to, our clinical trial results;
- collaborators may not properly enforce, maintain or defend our intellectual property rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our proprietary information or expose us to potential litigation;
- collaborators may own or co-own intellectual property covering our programs or future products that results from our collaboration with them, and in such cases, we would not have the exclusive right over such intellectual property;

- collaborators may deviate from established guidelines, instructions, or best practices for product handling and storage, which may compromise the safety, purity, potency, and effectiveness of our products and potentially result in the occurrence of serious adverse events in patients using our products;
- collaborations may be terminated and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable product candidates;
- we could experience reductions in the payments we believe are due to us pursuant to the applicable collaboration arrangement;
- collaborators could take actions inside or outside our collaboration that could negatively impact our rights or benefits under the applicable collaboration; or
- our collaborators may be unwilling to keep us informed regarding the progress of their development and commercialization activities or to permit public disclosure of their progress.

**** We may not realize the benefits of any acquisitions, in-license or strategic alliances that we enter into or fail to capitalize on programs that may present a greater commercial opportunity or for which there is a greater likelihood of success.***

Our business depends upon our ability to identify, develop and commercialize research programs or product candidates. A key element of our business strategy is to discover and develop additional programs based upon our core proprietary platforms, including our non-viral piggyBac DNA Delivery System, Cas-CLOVER Site-specific Gene Editing System and nanoparticle-based gene delivery technologies. In addition to internal research and development efforts, we are also seeking to do so through strategic collaborations, such as our collaboration with Roche, and may also explore additional strategic collaborations for the discovery of new programs. We have also entered into in-license agreements with multiple licensors and in the future may seek to 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 development or manufacturing costs, higher than expected personnel and other resource commitments, 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 public health crises, which could delay our timelines or otherwise adversely affect our business. Further, because we have limited resources, we must choose to pursue and fund the development of specific types of treatment, or treatment for a specific type of cancer, and we may forego or delay pursuit of opportunities with certain programs or products or for indications that later prove to have greater commercial potential. Our estimates regarding the potential market for our program could be inaccurate, and if we do not accurately evaluate the commercial potential for a particular program, we may relinquish valuable rights to that program through a strategic collaboration, licensing or other arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such program. Alternatively, we may allocate internal resources to a program in which it would have been more advantageous to enter into a partnering arrangement. If any of these events occur, we may be forced to abandon or delay our development efforts with respect to a particular product candidate or fail to develop a potentially successful program.

We may wish to form additional 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 certain 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. Third party collaborations generally require us to relinquish some or all of the control over the future

success of the applicable product candidates 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 certain product candidates, 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 certain product candidates, 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

**** 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 and RSUs that vest over time. The value to employees of stock options and RSUs 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. For example, in 2024, one of our executive officers provided notice of their resignation. 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. We do not maintain "key person" insurance policies on the lives of any of our executive officers. 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 have experienced higher than normal turnover in recent years, due to the increasingly competitive hiring market in the biotechnology industry and if we cannot retain our existing employees and hire new employees to combat the impact of attrition, our operations may be adversely affected.

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 and gene therapies for inherited genetic disorders. 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 and genetic disorders, 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 this 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., Arcellx, Inc., Astellas Pharma Inc., Autolus Ltd., Bristol-Meyers Squibb Company, Caribou Biosciences, Inc., Cellectis S.A., Janssen Pharmaceuticals Inc., Juno Therapeutics, Inc. (acquired by Celgene Corporation, now a Bristol-Meyers Squibb company), Gracell Biotechnologies Inc. (acquired by AstraZeneca PLC), Kite Pharma, Inc. (a Gilead Sciences, Inc. company), Legend Biotech Corporation, Novartis AG and Takeda. 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, Beam Therapeutics, Inc, Bristol-Myers Squibb Company, F. Hoffman-La Roche AG, Generation Bio, Inc., GlaxoSmithKline plc, Merck & Co., Inc. PassageBio, 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.

**** 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 $10.0 million per occurrence and 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. Our insurance policies may also have various exclusions, and we may be subject to a product liability claim for which we have no coverage. 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 as the patient death that occurred in our Phase 1 P-PSMA-101 trial. 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 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 June 30, 2024, we had 337 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, manufacturing, 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 or the third parties upon whom we depend may be adversely affected by earthquakes, fires or other natural disasters.

Our headquarters, main research facility and clinical manufacturing 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 providers' disaster recovery and business continuity plans, which 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, business, financial condition or results of operations.

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 current law, 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 federal tax laws.

As of December 31, 2023, we had $285.3 million of U.S. federal NOLs that can be carried forward indefinitely under current law. As of December 31, 2023, we also had aggregate U.S. federal orphan drug credits and R&D credits of approximately $46.9 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. For example, California imposed limits on the usability of California state net operating losses to offset taxable income in tax years beginning after 2023 and before 2027. As a result, if we earn net taxable income, we may be unable to use all or a material portion of our net operating loss carryforwards and other tax attributes, which could potentially result in increased future tax liability to us and adversely affect our future cash flows.

**** 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 our 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 and Medicaid Innovation at 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 have been executive, judicial and Congressional challenges to certain aspects of the Affordable Care Act. For example, on June 17, 2021, the U.S. Supreme Court dismissed a challenge on procedural grounds that argued the Affordable Care Act is unconstitutional in its entirety because the "individual mandate" was repealed by Congress. Further, prior to the U.S. Supreme Court ruling on January 28, 2021, President Biden issued an executive order that initiated a special enrollment period for purposes of obtaining health insurance coverage through the Affordable Care Act marketplace. The executive order also instructed certain governmental agencies to review and reconsider their existing policies and rules that limit access to healthcare, including among others, reexamining Medicaid demonstration projects and waiver programs that include work requirements, and policies that create unnecessary barriers to obtaining access to health insurance coverage through Medicaid or the Affordable Care Act. It is possible that the Affordable Care Act will be subject to judicial or Congressional challenges in the future. On August 16, 2022, President Biden signed the Inflation Reduction Act of 2022, or IRA, into law, which, among other things, extends enhanced subsidies for individuals purchasing health insurance coverage in Affordable Care Act marketplaces through plan year 2025. The IRA also eliminates the "donut hole" under the Medicare Part D program beginning in 2025 by significantly lowering the beneficiary maximum out-of-pocket cost and through a newly established manufacturer discount program. It is unclear how any additional healthcare reform measures of the Biden administration will impact the Affordable Care Act and 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 Infrastructure Investment and Jobs Act and the Consolidated Appropriations Act of 2023, will remain in effect until 2032 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. 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. This program provides clinicians with two ways to participate, including through the Advanced Alternative Payment Models, or APMs, and the Merit-based Incentive Payment System, or MIPS. Under both APMs and MIPS, performance data collected each performance year will affect Medicare payments in later years, including potentially reducing payments. 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 used several means to propose or implement drug pricing reform, including through federal budget proposals, executive orders and policy initiatives. In July 2021, the Biden administration released an executive order, "Promoting Competition in the American Economy," with multiple provisions aimed at prescription drugs. In response to Biden's executive order, on September 9, 2021, the Department of Health and Human Services, or HHS, released a Comprehensive Plan for Addressing High Drug Prices that outlines principles for drug pricing reform and sets out a variety of potential legislative policies that Congress could pursue to advance these principles. In addition, the IRA, among other things, (i) directs HHS to negotiate the price of certain high-expenditure, single-source drugs and biologics covered under Medicare, and subject drug manufacturers to civil monetary penalties and a potential excise tax by offering a price that is not equal to or less than the negotiated "maximum fair price" for such drugs and biologics under the law, and (ii) imposes rebates with respect to certain drugs and biologics covered under Medicare Part B or Medicare Part D to penalize price increases that outpace inflation. The IRA permits HHS to implement many of these provisions through guidance, as opposed to regulation, for the initial years. These provisions take effect progressively starting in fiscal year 2023. On August 29, 2023, HHS announced the list of the first ten drugs that will be subject to price negotiations, although the Medicare drug price negotiation program is currently subject to legal challenges. HHS has and will continue to issue and update guidance as these programs are implemented. It is currently unclear how the IRA will be implemented but is likely to have a significant impact on the pharmaceutical industry. Further, in response to the Biden administration's October 2022 executive order, on February 14, 2023, HHS released a report outlining three new models for testing by the CMS Innovation Center which will be evaluated on their ability to lower the cost of drugs, promote accessibility, and improve quality of care. It is unclear whether the models will be utilized in any health reform measures in the future. In addition, on December 7, 2023, the Biden administration announced an initiative to control the price of prescription drugs through the use of march-in rights under the Bayh-Dole Act. On December 8, 2023, the National Institute of Standards and Technology published for comment a Draft Interagency Guidance Framework for Considering the Exercise of March-In Rights which for the first time includes the price of a product as one factor an agency can use when deciding to exercise march-in rights. While march-in rights have not previously been exercised, it is uncertain if that will continue under the new framework.

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, and, in some cases, designed to encourage importation from other countries and bulk purchasing. For example, on January 5, 2024, the FDA approved Florida's Section 804 Importation Program, or SIP, proposal to import certain drugs from Canada for specific state healthcare programs. It is unclear how this program will be implemented, including which drugs will be chosen, and whether it will be subject to legal challenges in the United States or Canada. Other states have also submitted SIP proposals that are pending review by the FDA. Any such approved importation plans, when implemented, may result in lower drug prices for products covered by those programs.

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 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 the Civil Monetary Penalties Law 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;
- The Health Insurance Portability and Accountability Act of 1996, or 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 the Health Information Technology for Economic and Clinical Health Act of 2009, or HITECH, and their implementing regulations, which imposes privacy, security and breach reporting obligations with respect to individually identifiable health information upon covered entities, including certain healthcare providers, health plans, and healthcare clearinghouses, as well as their respective business associates that create, receive, maintain or transmit individually identifiable health information for or on behalf of a covered entity, and their subcontractors that use, disclose or otherwise process individually identifiable health information. 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 (defined to include doctors, dentists, optometrists, podiatrists and chiropractors), other health care professionals (such as physician assistants and nurse practitioners), and teaching hospitals, as well as information regarding ownership and investment interests held by physicians and their immediate family members;
- analogous state, local and foreign laws and regulations, 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 significant criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs.

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. 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.

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 product 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 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 public health crises 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 public health crises 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.

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 their 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 public health crises 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, or 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

**** The market price of our common stock has been and may continue to be volatile or may decline regardless of our operating performance and you could lose all or part of your investment.***

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;
- changes in the structure of healthcare payment systems;
- 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;
- the expiration of market standoff or contractual lock-up agreements;
- the size of our market float;
- the ongoing and future impact of public health crises and actions taken to mitigate them; and
- any other factors discussed in this Quarterly Report on Form 10-Q.

In addition, the stock markets in general, and the Nasdaq Global Market in particular, have experienced extreme price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many immuno-oncology and

gene therapy companies. Stock prices of many of these companies have fluctuated in a manner unrelated or disproportionate to their operating performance, and we have in the past experienced volatility that has been unrelated or disproportionate to our operating performance. From January 1, 2023 through July 30, 2024, the closing price of our common stock has ranged between $1.62 and $8.73 per share. 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 4, 2024, our executive officers, directors, five percent stockholders and their affiliates beneficially owned approximately 56% of our voting stock. Therefore, these stockholders 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.

If we 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.

We are 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.

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. We may discover material weaknesses in our system of internal financial and accounting controls and procedures in the future 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.

General Risk Factors

We will continue to 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 have incurred and will continue to incur significant legal, accounting and other expenses that we did not incur as a private company. In addition, we are subject to the Sarbanes-Oxley Act, as well as rules subsequently implemented by the SEC, and various requirements the Nasdaq Global Select Market have imposed 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. As an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012, we are permitted to implement many of these requirements over a longer period and up to five years from the completion of our initial public offering. We have and intend to continue to take advantage of this new legislation but cannot guarantee that we will remain an "emerging growth company" and may 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 annually incur approximately $4.0 million to $5.0 million in additional expenses to comply with the requirements imposed on us as a public company.

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.

**** If our information technology systems or data, or those of third parties with whom we work, are or were compromised, we could experience adverse consequences resulting from such compromise, including but not limited to regulatory investigations or actions; litigation; fines and penalties; disruptions of our business operations; a material disruption of our product candidates' development programs; reputational harm; loss of revenue or profits; loss of customers or sales; and other adverse consequences.***

We are increasingly dependent upon information technology systems, infrastructure and data to operate our business. In the ordinary course of business, we and the third parties with whom we work collect, receive, store, process, generate, use, transfer, disclose, make accessible, protect, secure, dispose of, transmit, and share, collectively, process, proprietary, confidential, and sensitive data, including personal data (such as health-related data), intellectual property, and trade secrets, collectively, sensitive 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. Our ability to monitor these third parties' cybersecurity practices is limited, and these third parties may not have adequate information security measures in place.

Cyberattacks, malicious internet-based activity, and online and offline fraud and other similar activities threaten the confidentiality, integrity, and availability of our sensitive information and information technology systems, and those of the third parties with whom we work. These threats are prevalent, continue to increase, and are becoming increasingly difficult to detect. These threats come from a variety of sources. In addition to traditional computer "hackers," threat actors, personnel (such as through theft or misuse), sophisticated nation-states, and nation-state-supported actors now engage in attacks. Some threat actors now engage and are expected to continue to engage in cyber-attacks, including without limitation nation-state actors for geopolitical reasons and in conjunction with military conflicts and defense activities. During times of war and other major conflicts, we and the third parties with whom we work may be vulnerable to a heightened risk of these attacks, including retaliatory cyber-attacks, that could materially disrupt our systems and operations.

We and the third parties with whom we work may be subject to a variety of evolving threats, including but not limited to social-engineering attacks (including through deep fakes, which may be increasingly more difficult to identify as fake, and phishing attacks), malicious code (such as viruses and worms), malware (including as a result of advanced persistent threat intrusions), denial-of-service attacks, credential stuffing, personnel misconduct or error, ransomware attacks, supply-chain attacks, software bugs, server malfunctions, software or hardware failures, loss of data or other information technology assets, adware, telecommunications failures, earthquakes, fires, floods, attacks enhanced or facilitated by AI, and other similar threats. It may be difficult and/or costly to detect, investigate, mitigate, contain, and remediate a security incident. Our efforts to do so may not be successful. Actions taken by us or the third parties with whom we work to detect, investigate, mitigate, contain, and remediate a security incident could result in outages, data losses, and disruptions of our business. Threat actors may also gain access to other networks and systems after a compromise of our networks and systems. Ransomware attacks, including those perpetrated by organized criminal threat actors, nation-states, and

nation-state-supported actors, are becoming increasingly prevalent and severe and can lead to significant interruptions in our operations, ability to provide products or services, loss of data and income, reputational harm, and diversion of funds. Extortion payments may alleviate the negative impact of a ransomware attack, but we may be unwilling or unable to make such payments for example, due to applicable laws or regulations prohibiting such payments. Similarly, supply-chain attacks have increased in frequency and severity, and we cannot guarantee that third parties and infrastructure in our supply chain or our third-party partners' supply chains have not been compromised or that they do not contain exploitable defects or bugs that could result in a breach of or disruption to our information technology systems or the third-party information technology systems that support us and our services. Future or past business transactions (such as acquisitions or integrations) could expose us to additional cybersecurity risks and vulnerabilities, as our systems could be negatively affected by vulnerabilities present in acquired or integrated entities' systems and technologies. Furthermore, we may discover security issues that were not found during due diligence of such acquired or integrated entities, and it may be difficult to integrate companies into our information technology environment and security program.

Any of the previously identified or similar threats could cause a security incident or other interruption. A security incident or other interruption could result in unauthorized, unlawful, or accidental acquisition, modification, destruction, loss, alteration, encryption, disclosure of, or access to data or could disrupt our ability (and that of third parties with whom we work) to provide our services. If such an event were to occur, or was perceived to have occurred, it could result in a material disruption of our product development programs and our business operations. These threats pose a risk to the security of our systems, the confidentiality and the availability and integrity of our data, and these risks apply both to us, and to third parties with whom we work for the conduct of our business. If our third-party service providers experience a security incident or other interruption, we could also experience adverse consequences. While we may be entitled to damages if our third-party service providers fail to satisfy their privacy or security-related obligations to us, any award may be insufficient to cover our damages, or we may be unable to recover such award.

We may expend significant resources or modify our business activities (including our clinical trial activities) in an effort to protect against security incidents and to detect, mitigate, and remediate vulnerabilities in our information systems (such as our hardware and/or software, including that of third parties with whom we work). Certain data privacy and security obligations may require us to implement and maintain specific security measures, industry-standard or reasonable security measures to protect our information technology systems and data. Despite the implementation of security measures, given their size and complexity and the increasing amounts of confidential information that we, and the third parties with whom we work, maintain, there can be no assurance that these measures will be effective. We may be unable to detect and remediate all vulnerabilities in our information technology systems on a timely basis because such threats and techniques used to exploit vulnerabilities change frequently and are often sophisticated in nature. Therefore, such vulnerabilities may not be detected until after a security incident has occurred. Despite our efforts to identify and remediate vulnerabilities, if any, in our information technology systems, our efforts may not be successful. Further, we may experience delays in developing and deploying remedial measures designed to address any such identified vulnerabilities. These vulnerabilities pose material risks to our business and could be exploited and result in a security incident.

We cannot be certain that our data protection efforts and our investment in information technology will prevent a security incident from occurring. If we suffer such an incident, applicable data privacy and security obligations may require us, or we may voluntarily choose, to notify relevant stakeholders, including affected individuals, customers, regulators, and investors, of security incidents, or to take other actions, such as providing credit monitoring and identity theft protection services. Such disclosures and related actions can be costly, and the disclosures or the failure to comply with such applicable requirements could lead to adverse consequences. If we (or a third party with whom we work) experience a security incident or are perceived to have experienced a security incident, we may experience adverse consequences such as government enforcement actions (for example, investigations, fines, penalties, audits, and inspections); additional reporting requirements and/or oversight; restrictions on processing data (including personal data); litigation (including class claims); indemnification obligations; negative publicity; reputational harm; diversion of management attention; monetary expenditures; interruptions in our operations (including availability of data); financial loss; and other similar harms. Security incidents and attendant consequences may cause delays in the development of our product candidates, cause customers to stop using our products or services, deter new customers from using our products or services, and negatively impact our ability to grow and operate our business.

Our contracts may not contain limitations of liability, and even where they do, there can be no assurance that limitations of liability in our contracts are sufficient to protect us from liabilities, damages, or claims related to our data privacy and security obligations. We cannot be sure that our insurance coverage will be adequate or sufficient to protect us from or to mitigate liabilities arising out of our privacy and security practices, that such coverage will continue to be available on commercially reasonable terms or at all, or that such coverage will pay future claims. Our risks are likely to increase as we continue to expand our business, grow our customer base, and process, store, and transmit increasingly large amounts of proprietary and sensitive data.

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, legislation enacted in 2017 informally titled the Tax Cuts and Jobs Act, the Coronavirus Aid, Relief, and Economic Security Act and the IRA enacted many significant changes to the U.S. tax laws. Future guidance from the Internal Revenue Service and other tax authorities with respect to such legislation may affect us, and certain aspects of such legislation could be repealed or modified in future legislation. In addition, it is uncertain if and to what extent various states will conform to federal tax laws. Future tax 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.

Effective January 1, 2022, the Tax Cuts and Jobs Act eliminated the option to deduct research and development expenses for tax purposes in the year incurred and requires taxpayers to capitalize and subsequently amortize such expenses over five years for research activities conducted in the United States and over 15 years for research activities conducted outside the United States. Although there have been legislative proposals to repeal or defer the capitalization requirement to later years, there can be no assurance that the provision will be repealed or otherwise modified. Future guidance from the Internal Revenue Service and other tax authorities with respect to such legislation may affect us, and certain aspects of such legislation could be repealed or modified in future legislation.

**** We and the third parties with whom we work are subject to stringent and evolving U.S. and foreign laws, regulations, and rules, contractual obligations, industry standards, policies and other obligations related to data privacy and security. Our (or the third parties with whom we work) actual or perceived failure to comply with health and data protection obligations could lead to regulatory investigations or actions (which could include civil or criminal penalties), private litigation (including class claims) and mass arbitration demands, fines and penalties, disruptions of our business operations, reputational harm, loss of revenue or profits, and/or adverse publicity and could negatively affect our operating results and business.***

We process personal data and other sensitive data (including health data we collect about trial participants in connection with clinical trials); proprietary and confidential business data; trade secrets; intellectual property; and sensitive third-party data. Our data processing activities subject us to numerous data privacy and security obligations. Accordingly, we and any potential collaborators may be subject to numerous federal, state, and foreign data privacy and protection obligations, such as various laws, regulations, guidance, industry standards, external and internal privacy and security policies, contracts, and other obligations that relate to data privacy and security or govern the processing of personal data by us and on our behalf.

Data privacy and information security have become significant issues in the United States, countries in Europe, and in other countries in which we operate. The legal and regulatory framework for privacy and security issues is rapidly evolving, and is expected to increase our compliance costs and exposure to liability. In the United States, there are numerous federal and state laws and regulations, including federal health information privacy laws, breach notification laws, health information privacy laws, personal data privacy laws, federal and state consumer protection laws (e.g., Section 5 of the Federal Trade Commission Act), and other similar laws (e.g., wiretapping and recording laws) 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 the past few years, numerous U.S. states—including California, Virginia, Colorado, Connecticut, and Utah—have enacted comprehensive privacy laws that impose certain obligations on covered businesses, including providing specific disclosures in privacy notices and affording residents with certain rights concerning their personal data. As applicable, such rights may include the right to access, correct, or delete certain personal data, and to opt-out of certain data processing activities, such as targeted advertising, profiling, and automated decision-making. The exercise of these rights may impact our business and ability to provide our products and services. Certain states also impose stricter requirements for processing certain personal data, including sensitive information, such as conducting data privacy impact assessments. These state laws allow for statutory fines for noncompliance. For example, the California Consumer Privacy Act of 2018, as amended by the California Privacy Rights Act of 2020, collectively, the CCPA, applies to personal information of consumers, business representatives and employees and requires businesses to provide specific disclosures in privacy notices and honor requests of individuals to exercise certain privacy rights. The CCPA provides for civil penalties of up to $7,500 per intentional violation and allows private litigants affected by certain data breaches to recover significant statutory damages. Although the CCPA and other comprehensive U.S. state privacy laws exempt some data processed in the context of clinical trials, these developments increase compliance costs and potential liability for us and for the third parties with whom we work. In addition, similar data privacy and security laws have been proposed at the federal, state, and local levels in recent years and we expect more states to pass similar laws in the future, which further complicate compliance efforts and increase legal risk and compliance costs for us and the third parties with whom we work. If we are or become subject to these laws and/or new or amended data privacy laws, the risk of enforcement actions against us could increase because we may be subject to obligations under applicable regulatory frameworks and the number of individuals or entities that could initiate actions against us may increase (including individuals via a private right of action), in

addition to further complicating our compliance efforts. We may be subject to new laws governing the privacy of consumer health data. For example, Washington's My Health My Data Act, or MHMD, broadly defines consumer health data, places restrictions on processing consumer health data (including imposing stringent requirements for consents), provides consumers certain rights with respect to their health data, and creates a private right of action to allow individuals to sue for violations of the law. Other states are considering and may adopt similar laws.

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 HIPAA, as amended by HITECH, which imposes specific requirements relating to the privacy, security, and transmission of individually identifiable health information. If we violate HIPAA, we may be subject to significant penalties. Further, privacy advocates and industry groups have proposed, and may propose in the future, standards with which we are legally or contractually bound to comply. Additionally, under various privacy laws and other obligations, we may be required to obtain certain consents to process personal data. For example, some of our data processing practices may be challenged under wiretapping laws, if we obtain consumer information from third parties through various methods, including chatbot and session replay providers, or via third-party marketing pixels. These practices may be subject to increased challenges by class action plaintiffs. Our inability or failure to obtain consent for these practices could result in adverse consequences, including class action litigation and mass arbitration demands.

Outside of the United States, 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. For example, the European Union's General Data Protection Regulation, or EU GDPR, and the United Kingdom's GDPR, or UK GDPR, impose strict requirements for processing the personal data of individuals. For example, under the EU GDPR, government regulators may impose temporary or definitive bans on data processing, as well as fines of up to 20 million Euros under the EU GDPR, 17.5 million pounds sterling under the UK GDPR or, in each case, 4% of annual global revenue, whichever is greater or private litigation related to processing of personal data brought by classes of data subjects or consumer protection organizations authorized at law to represent their interests. The unstable nature of European Union's data protection landscape may result in possible significant operational costs for internal compliance and risk to our business.

In the ordinary course of business, we may transfer personal data from Europe and other jurisdictions to the United States or other countries. Certain jurisdictions have enacted data localization laws and cross-border personal data transfer laws. For example, Europe and other jurisdictions have enacted laws requiring data to be localized or limiting the transfer of personal data to other countries. In particular, the European Economic Area, or EEA, and the United Kingdom, or UK, have significantly restricted the transfer of personal data to the United States and other countries whose privacy laws it generally believes are inadequate. Other jurisdictions may adopt similarly stringent interpretations of their data localization and cross-border data transfer laws. Although there are currently various mechanisms that may be used to transfer personal data from the EEA and UK to the United States in compliance with law, such as the EEA's standard contractual clauses, the UK's International Data Transfer Agreement / Addendum, and the EU-U.S. Data Privacy Framework (which allows for transfers to relevant U.S.-based organizations who self-certify compliance and participate in the Framework), these mechanisms are subject to legal challenges, and there is no assurance that we can satisfy or rely on these measures to lawfully transfer personal data to the United States. If there is no lawful manner for us to transfer personal data from the EEA, the UK or other jurisdictions to the United States, or if the requirements for a legally-compliant transfer are too onerous, we could face significant adverse consequences, including the interruption or degradation of our operations, the need to relocate part of or all of our business or data processing activities to other jurisdictions (such as Europe) at significant expense, increased exposure to regulatory actions, substantial fines and penalties, the inability to transfer data and work with partners, vendors and other third parties, and injunctions against our processing or transferring of personal data necessary to operate our business. Additionally, companies that transfer personal data out of the EEA and UK to other jurisdictions, particularly to the United States, are subject to increased scrutiny from regulators, individual litigants, and activist groups. Some European regulators have ordered certain companies to suspend or permanently cease transfers out of Europe for allegedly violating the GDPR's cross-border data transfer limitations. For example, in May 2023, the Irish Data Protection Commission determined that a major social media company's use of the standard contractual clauses to transfer personal data from Europe to the United States was insufficient and levied a 1.2 billion Euro fine against the company and prohibited the company from transferring personal data to the United States. Regulators in the United States are also increasingly scrutinizing certain personal data transfers and may impose data localization requirements, for example, the Biden Administration's executive order Preventing Access to Americans' Bulk Sensitive Personal Data and United States Government-Related Data by Countries of Concern.

We are also bound by contractual obligations related to data privacy and security, and our efforts to comply with such obligations may not be successful. For example, certain privacy laws, such as the GDPR and the CCPA, require our customers to impose specific contractual restrictions on their service providers. We publish privacy policies, marketing materials and other statements, such as compliance with certain certifications or self-regulatory principles, regarding data privacy and security. If these policies, materials or statements are found to be deficient, lacking in transparency, deceptive, unfair, or misrepresentative of our practices, we may be subject to investigation, enforcement actions by regulators or other adverse consequences.

Obligations related to data privacy and security (and individuals' data privacy expectations) are quickly changing, becoming increasingly stringent, and creating regulatory uncertainty. Additionally, these obligations may be subject to differing applications and interpretations, which may be inconsistent or conflict among jurisdictions. Preparing for and complying with these obligations requires us to devote significant resources, which may necessitate changes to our services, information technologies, systems, and practices and to those of any third parties that process personal data on our behalf. Although we endeavor to comply with all applicable data privacy and security obligations, we may at times fail (or be perceived to have failed) to do so. Moreover, despite our efforts, our personnel or third parties with whom we work may fail to comply with such obligations which could impact our compliance posture. For example, any failure by a third-party processor to comply with applicable law, regulations, or contractual obligations could result in adverse effects, including inability to operate our business and proceedings against us by governmental entities or others. Failure to comply, or any perceived 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 investigations, fines, audits, and inspections), private litigation (including class-related claims) and mass arbitration demands, breach reporting requirements, additional reporting requirements and/or oversight, bans on processing personal data, orders to destroy or not use personal data, and/or adverse publicity and could negatively affect our operating results and business. In particular, plaintiffs have become increasingly more active in bringing privacy-related claims against companies, including class claims and mass arbitration demands. Some of these claims allow for the recovery of statutory damages on a per violation basis, and, if viable, carry the potential for monumental statutory damages, depending on the volume of data and the number of violations. 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. Any of these events could have a material adverse effect on our reputation, business, or financial condition, including but not limited to: loss of customers, interruptions or stoppages in our business operations (including, as relevant, clinical trials), inability to process personal data or to operate in certain jurisdictions, expenditure of time and resources to defend any claim or inquiry, or substantial changes to our business model or operations.

Social media platforms present new risks and challenges to our business.

As social media continues to expand, it also presents us with new risks and challenges. Social media is increasingly being used to communicate information about us, our programs and the diseases our product candidates are being developed to treat. Social media practices in the pharmaceutical and biotechnology industries are evolving, which creates uncertainty and risk of noncompliance with regulations applicable to our business. For example, patients may use social media platforms to comment on the effectiveness of, or adverse experiences with, a product or a product candidate, which could result in reporting obligations or other consequences. Further, the accidental or intentional disclosure of non-public information by our workforce or others through media channels could lead to information loss. In addition, there is a risk of inappropriate disclosure of sensitive information or negative or inaccurate posts or comments about us, our products, or our product candidates on any social media platform. If any of these events were to occur or we otherwise fail to comply with applicable regulations, we could incur liability, face restrictive regulatory actions or incur other harm to our business including quick and irreversible damage to our reputation, brand image and goodwill.

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.

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

Our results of operations could be adversely affected by general conditions in the U.S. and global economies, the U.S. and global financial markets and adverse geopolitical and macroeconomic developments. U.S. and global market and economic conditions have been, and continue to be, disrupted and volatile due to many factors, including component shortages and related supply chain challenges, geopolitical developments such as public health crises, and the conflict between Ukraine and Russia and related sanctions, bank failures, and increasing inflation rates and the responses by central banking authorities to control such inflation, among others. General business and economic conditions that could affect our business, financial condition or results of operations include fluctuations in economic growth, debt and equity capital markets, liquidity of the global financial markets, access to our liquidity within the U.S. banking system, the availability and cost of credit, investor and consumer confidence, and the strength of the economies in which we, our manufacturers and our suppliers operate.

Additionally, financial markets around the world experienced volatility following the invasion of Ukraine by Russia. In response to the invasion, the United States, United Kingdom and EU, along with others, imposed significant new sanctions and export controls against Russia, Russian banks and certain Russian individuals and may implement additional sanctions or take further punitive actions in the future. The full economic and social impact of the sanctions imposed on Russia (as well as possible future punitive measures that may be implemented), as well as the counter measures imposed by Russia, in addition to the ongoing military conflict between Ukraine and Russia and related sanctions, which could conceivably expand into the surrounding region, remains uncertain; however, both the conflict and related sanctions have resulted and could continue to result in disruptions to trade, commerce, pricing stability, credit availability, supply chain continuity and reduced access to liquidity in both Europe and globally, and has introduced significant uncertainty into global markets. In particular, the ongoing Russia-Ukraine conflict and related sanctions has contributed to rapidly rising costs of living (driven largely by higher energy prices) in Europe and other advanced economies. Further, a weak or declining economy could strain our suppliers and manufacturers. As a result, our business and results of operations may be adversely affected by the ongoing conflict between Ukraine and Russia and related sanctions, particularly to the extent it escalates to involve additional countries, further economic sanctions or wider military conflict.

Future sales and issuances of our common stock or rights to purchase common stock, including pursuant to our equity incentive plans, could result in 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 (i) 5% of the total number of shares of our common stock outstanding on the last day of the calendar month before the date of each automatic increase, or (ii) 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.

If securities or industry analysts issue an adverse or misleading opinion regarding our stock, our stock price and trading volume could decline.

The trading market for our common stock could be influenced by the research and reports that industry or securities analysts publish about us or our business. If any of the analysts who cover us issue an adverse or misleading opinion regarding us, our business model, our intellectual property or our stock performance, or if the clinical trials and operating results fail to meet the expectations of analysts, the trading price for our common stock would be negatively affected. 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.

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

We are 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.

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 our initial public offering, (b) in which we have total annual gross revenue of at least $1.235 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 30 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 could make a merger, tender offer or proxy contest difficult, thereby depressing the trading price of our common stock.

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 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.

Our amended and restated certificate of incorporation 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 provides 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.

This provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act. Furthermore, Section 22 of the Securities Act creates concurrent jurisdiction for federal and state courts over all such Securities Act actions. Accordingly, both state and federal courts have jurisdiction to entertain such claims. To prevent having to litigate claims in multiple jurisdictions and the threat of inconsistent or contrary rulings by different courts, among other considerations, our amended and restated certificate of incorporation further provides 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. While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive forum provisions. In such instance, we would expect to vigorously assert the validity and enforceability of the exclusive forum provisions of our amended and restated certificate of incorporation. This may require significant additional costs associated with resolving such action in other jurisdictions and there can be no assurance that the provisions will be enforced by a court in those other jurisdictions.

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, which may discourage lawsuits against us and our directors, officers and other employees. If a court were to find either exclusive forum provision in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur further significant additional costs associated with resolving the dispute in other jurisdictions, all of which could seriously harm our business.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

None.

Item 3. Defaults Upon Senior Securities

None.

Item 4. Mine Safety Disclosures.

Not applicable.

Item 5. Other Information.

On June 21, 2024, our Executive Chairman, Mark J. Gergen, J.D., entered into a trading plan intended to satisfy the affirmative defense conditions of Rule 10b5-1(c) under the Exchange Act to sell up to 620,721 shares of common stock. The trading plan expires on April 14, 2026.

Item 6. Exhibits.

Exhibit Number	Description
3.1	Amended and Restated Certificate of Incorporation of the Registrant (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K (File No. 001-39376), filed with the SEC on July 14, 2020).
3.2	Amended and Restated Bylaws of the Registrant (incorporated by reference to Exhibit 3.2 to the Registrant's Current Report on Form 8-K (File No. 001-39376), filed with the SEC on July 14, 2020).
4.1	Form of Common Stock Certificate of the Registrant (incorporated by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-1 (File No. 333-239321), filed with the SEC on June 19, 2020).
4.2	Amended and Restated Investors' Rights Agreement, by and among the Registrant and certain of its stockholders, dated June 24, 2020 (incorporated by reference to Exhibit 4.2 to the Registrant's Registration Statement on Form S-1, as amended (File No. 333-239321), filed with the SEC on July 6, 2020).
4.3	Form of Warrant issued to Oxford Finance LLC, dated July 25, 2017 (incorporated by reference to Exhibit 4.3 to the Registrant's Registration Statement on Form S-1 (File No. 333-239321), filed with the SEC on June 19, 2020).
4.4	Form of Warrant issued to Oxford Finance LLC, dated August 13, 2018 (incorporated by reference to Exhibit 4.4 to the Registrant's Registration Statement on Form S-1 (File No. 333-239321), filed with the SEC on June 19, 2020).
4.5	Form of Warrant issued to Oxford Finance LLC, dated February 11, 2019 (incorporated by reference to Exhibit 4.5 to the Registrant's Registration Statement on Form S-1 (File No. 333-239321), filed with the SEC on June 19, 2020).
4.6	Registration Rights Agreement, by and between the Registrant and Astellas US, LLC, dated August 4, 2023 (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K (File No. 001-39376), filed with the SEC on August 7, 2023).
10.1 ‡^	Collaboration and License Agreement, by and between the Registrant and Xyphos Biosciences, Inc. dated April 30, 2024.
31.1	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Exchange Act, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Exchange Act, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1*	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2*	Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	Inline XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document
101.SCH	Inline XBRL Taxonomy Extension Schema with Embedded Linkbases Document
104	Cover Page Interactive Data File (formatted as Inline XBRL with applicable taxonomy extension information contained in Exhibit 101.INS)

* This certification shall not be deemed filed for purposes of Section 18 of the Exchange Act or otherwise subject to the liability of that Section, nor shall it be deemed incorporated by reference into any filing under the Securities Act or the Exchange Act.

‡ Certain information in this exhibit has been redacted pursuant to Item 601(b)(10)(iv) of Regulation S-K because it is both not material and is the type of information that the Registrant treats as private or confidential.

^ 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.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

POSEIDA THERAPEUTICS, INC.

Date: August 5, 2024	By:	/s/ Kristin Yarema
		Kristin Yarema, Ph.D.
		Chief Executive Officer
		(Principal Executive Officer)
Date: August 5, 2024	By:	/s/ Johanna M. Mylet
		Johanna M. Mylet, C.P.A.
		Chief Financial Officer
		(Principal Financial Officer)

CONFIDENTIAL

Exhibit 10.1

CERTAIN INFORMATION CONTAINED IN THIS EXHIBIT, MARKED BY [***], HAS BEEN EXCLUDED FROM THIS EXHIBIT BECAUSE THE REGISTRANT HAS DETERMINED THAT IT IS BOTH NOT MATERIAL AND IS THE TYPE THAT THE REGISTRANT TREATS AS PRIVATE OR CONFIDENTIAL.

COLLABORATION AND LICENSE AGREEMENT

between

POSEIDA THERAPEUTICS, INC.

and

XYPHOS BIOSCIENCES, INC.

April 30, 2024

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COLLABORATION AND LICENSE AGREEMENT

This Research and Collaboration Agreement (this "**Agreement**") is made and entered into effective April 30, 2024 (the "**Effective Date**") by and between **XYPHOS BIOSCIENCES, INC.**, a Delaware corporation with its principal place of business at 480 Forbes Blvd, South San Francisco, CA 94080, United States ("**Xyphos**"), and **POSEIDA THERAPEUTICS, INC.**, a Delaware corporation with its principal place of business at 9390 Towne Centre Drive #200, San Diego, CA 92121 ("**Poseida**"). Xyphos and Poseida are sometimes referred to herein individually as a "**Party**" and collectively as the "**Parties**".

RECITALS

WHEREAS, Poseida and Xyphos are each in the business of discovering, developing, and commercializing pharmaceutical products;

WHEREAS, Poseida owns or controls certain intellectual property rights with respect to allogeneic Allo-T cell therapeutic products in the Field in the Territory;

WHEREAS, Poseida and Xyphos desire to collaborate in the research of certain Allo-T cell therapeutic products, which Xyphos would develop and commercialize; and

WHEREAS, Poseida desires to grant to Xyphos an exclusive license to certain technologies for Xyphos to use and incorporate in the research, development, and commercialization of certain Allo-T cell therapeutic products.

NOW, THEREFORE, in consideration of the mutual covenants, terms and conditions set forth herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties, intending to be legally bound, do hereby agree as follows:

ARTICLE 1
DEFINITIONS

For the purposes of this Agreement, the following terms shall have the following meanings:

1.1 "**AAA**" has the meaning set forth in Section 14.5.2.

1.2 "**AAA Rules**" has the meaning set forth in Section 14.5.2.

1.3 "**ACCEL**" means advanced cellular control through engineered ligands technology.

1.4 "**ACCEL Platform**" means [***].

1.5 "**ACCEL Platform Improvement IP**" has the meaning set forth in Section 9.2.1(b).

1.6 "**ACCEL Platform Improvement Know-How**" has the meaning set forth in Section 9.2.1(b).

1.7 "**ACCEL Platform Improvement Patents**" has the meaning set forth in Section 9.2.1(b).

1.8 "**Accounting Standards**" means, with respect to a Party, its Affiliates or its or their sublicensees, United States generally accepted accounting principles or International Financial Reporting Standards as issued by the International Accounting Standards Board, as applicable, in each case, consistently applied.

1.9 "**Action**" has the meaning set forth in Section 9.4.1(b).

1.10 "**Adverse Event**" has the meaning set forth in 21 C.F.R. § 312.32 and generally means any unintended and unfavorable medical occurrence associated with the use of a Licensed Product in a human patient or subject who is administered a Licensed Product, whether or not considered related to such Licensed Product.

1.11 "**Affiliate**" means, with respect to a Person, any Person that, directly or indirectly, through one or more intermediaries, controls, is controlled by or is under common control with such Person. For purposes of this definition, "control" and, with correlative meanings, the terms "controlled by" and "under common control with" means: (a) the possession, directly or indirectly, of the power to direct the management or policies of a business entity, whether through the ownership of voting securities, by contract relating to voting rights or corporate governance, or otherwise; or (b) the ownership, directly or indirectly, of more than fifty percent (50%) of the voting securities or other ownership interest of a business entity (or, with respect to a limited partnership or other similar entity, its general partner or controlling entity).

1.12 "**Agreement**" has the meaning set forth in the preamble.

1.13 "**Alliance Manager**" has the meaning set forth in Section 2.3.

1.14 "**Allogeneic Cell Therapy**" means a pharmaceutical product comprising living cells that are administered to a patient and intended to treat, cure, or prevent solid tumor cancers, in which the living cells that are administered to a patient are collected from donor(s) (and not generated from induced pluripotent stem cells) other than such patient.

1.15 "**Allo-T Cell**" means [***].

1.16 "**Allo-T Platform**" means [***].

1.17 "**Allo-T Platform Improvement IP**" has the meaning set forth in Section 9.2.1(a).

1.18 "**Allo-T Platform Improvement Know-How**" has the meaning set forth in Section 9.2.1(a)

1.19 "**Allo-T Platform Improvement Patent**" has the meaning set forth in Section 9.2.1(a)

1.20 "**Annual Cap**" has the meaning set forth in Section 8.2.

1.21 "**Anti-Corruption Laws**" has the meaning set forth in Section 11.4.

1.22 "**Applicable Laws**" means all federal, state, local, national and supra-national laws, statutes, rules, regulations, and other pronouncements having the effect of law, in each case, enacted, promulgated, issued, enforced or entered by any Governmental Authority, including any rules, regulations or other requirements of the Regulatory Authorities that may be in effect from time to time during the Term and applicable to a Party or its Affiliates or to such Party's or its Affiliates' activities under this Agreement or business, properties or assets.

1.23 "**Armoring Platform**" means [***].

1.24 "**Audited Party**" has the meaning set forth in Section 8.11.

1.25 "**Bankruptcy Code**" has the meaning set forth in Section 13.3.1.

1.26 "**Biosimilar Competition**" means, on a country-by-country and Licensed Product-by-Licensed Product basis, [***].

1.27 "**Biosimilar Product**" means [***].

1.28 "**BLA**" means: (a) a Biologics License Application submitted to the FDA pursuant to Section 351(a) of the Public Health Service Act, or any successor application thereto in the U.S.; or (b) any ex-U.S. counterpart of the application described in foregoing sub-clause (a).

1.29 "**Booster Technology**" means [***].

1.30 "**Breaching Party**" has the meaning set forth in Section 13.2.1.

1.31 "**Business Day**" means a day other than a Saturday or Sunday on which banking institutions in New York, U.S., and Tokyo, Japan, are open for business.

1.32 "**CAR**" means chimeric antigen receptor.

1.33 "**cCAR-based Allogeneic Cell Therapy**" means an Allogeneic Cell Therapy that utilizes: [***].

1.34 "**Cas-CLOVER™ Gene Editing Technology**" means [***].

1.35 "**Change of Control**" means, with respect to Poseida, any of the following occurs after the Effective Date: (a) a transaction or series of related transactions in which any Third Party becomes the beneficial owner, directly or indirectly, of shares of capital stock or other interests (including partnership interests) of Poseida then outstanding and normally entitled (without regard to the occurrence of any contingency) to vote in the election of the directors, managers or similar supervisory positions ("**Voting Stock**") of Poseida representing fifty percent (50%) or more of the total voting power of all outstanding classes of Voting Stock of Poseida; (b) Poseida enters into an acquisition, reorganization, merger, consolidation or similar transaction with a Third Party and as a result of such transaction the Persons that beneficially owned, directly or indirectly, the shares of Voting Stock of Poseida immediately prior to such transaction cease to beneficially own, directly or indirectly, the shares of Voting Stock of Poseida or the surviving entity representing at least a majority of the total voting power of all outstanding classes of Voting Stock of the surviving entity; or (c) the sale or other transfer to a Third Party of all or substantially all of Poseida's assets.

1.36 "**Claims**" has the meaning set forth in Section 12.1.

1.37 "**Clinical Trial**" means any study in which human subjects are dosed or treated that are required by Applicable Law, or otherwise recommended by the Regulatory Authorities, to obtain or maintain Regulatory Approvals for a Licensed Product for one (1) or more indications.

1.38 "**Combination Product**" means [***].
1.39 "**Commercial Milestone Event**" has the meaning set forth in Section 8.3.2.
1.40 "**Commercial Milestone Payment**" has the meaning set forth in Section 8.3.2.

1.41 "**Commercialization**" means any and all activities directed to the preparation for sale of, offering for sale of, or sale of Licensed Products, including activities related to marketing, promoting, distributing, and importing such Licensed Products, and interacting with Regulatory Authorities regarding any of the foregoing. For clarity, Commercialization does not include Manufacturing. When used as a verb, "to Commercialize" and "Commercializing" means to engage in Commercialization by itself or through a Third Party, and "Commercialized" has a corresponding meaning.

1.42 "**Commercially Reasonable Efforts**" means: [***].

1.43 "**Competing Product**" means [***].

1.44 "**Competing Program**" has the meaning set forth in Section 3.8.2.

1.45 "**Completion**" means, with respect to a Clinical Trial, that database lock for such Clinical Trial has occurred.

1.46 "**Confidential Information**" of a Party means all knowledge of a technical, scientific, business or other nature, including know-how, technology, inventions, methods, processes, practices, formulae, instructions, skills, techniques, procedures, experiences, ideas, technical assistance, designs, drawings, assembly procedures, computer programs, apparatuses, specifications, data, results and other material, regulatory data, and other biological, chemical, pharmacological, toxicological, pharmaceutical, physical and analytical, pre-clinical, clinical, safety, manufacturing and quality control data and information, including study designs and protocols, reagents (e.g., plasmids, proteins, cell lines, assays and compounds), biological methodology and trade secrets; (in each case whether or not confidential, proprietary, patented or patentable, of commercial advantage or not) in written, electronic or any other form now known or hereafter developed, including information relating to the terms of this Agreement or any Licensed Product, any Exploitation of the Licensed Products, any Know-How with respect thereto developed by or on behalf of a Party or its Affiliates, or the scientific, regulatory or business affairs or other activities of either Party.

1.47 "**Confidentiality Agreement**" means that certain non-disclosure agreement by and between the Parties, dated [***].

1.48 "**Control**" means, with respect to any Know-How, Regulatory Documentation, material, Patent, or other intellectual property right existing on or after the Effective Date or during the Term, possession of the right, whether directly or indirectly, and whether by ownership, (sub)license or otherwise (other than by operation of the License granted under Section 3.1), to grant a license, sublicense or other right (including the right to reference Regulatory Documentation) to or under such Know-How, Regulatory Documentation, material, Patent, or other intellectual property right as provided for herein without violating the terms of any agreement or other arrangement with any Third Party in existence as of the time such Party would be required hereunder to grant such (sub)license or rights, [***].

1.49 "Conventional CAR" means a CAR whose extracellular domain binds directly and specifically to a TAA.

1.50 "**Conventional CAR-based Allogeneic Cell Therapy**" means an Allogeneic Cell Therapy that utilizes Allo-T Cells engineered to express a Conventional CAR, wherein the Conventional CAR directly and specifically binds only to the applicable TAA, and such binding causes pharmacologically relevant activity.

1.51 "**Convicted Individual**" or "**Convicted Entity**" has the meaning set forth in Section 11.3.

1.52 "**Cost of Goods**" means [***].

1.53 "**Cover**" means, with respect to a product, that the Development, Manufacture, Commercialization, use or other Exploitation of such product, would, but for a license granted under such Patent, infringe a Valid Claim (or, in the case of a Valid Claim that has not yet been issued, would infringe such Valid Claim if it were to issue) of such Patent in the country in which such activity occurs.

1.54 "**Cure Period**" has the meaning set forth in Section 13.2.1.

1.55 "**DEA**" means Drug Enforcement Administration of the United States.

1.56 "**Debarred Individual**" has the meaning set forth in Section 11.3.

1.57 "**Default**" means: (a) any material breach; (b) the existence of circumstances or the occurrence of an event that, with the passage of time, the giving of notice, or both, would constitute a material breach; or (c) the existence of circumstances or the occurrence of an event that, with or without the passage of time, the giving of notice, or both, would give rise to a right of termination for cause.

1.58 "**Determination Period**" has the meaning set forth in Section 4.4.2(b).

1.59 "**Development**" means any and all activities directed to the clinical development of a biopharmaceutical product, including clinical toxicology, Clinical Trials, statistical analysis and
report writing, the preparation and submission of INDs and Drug Approval Applications, regulatory affairs with respect to the foregoing, and all other activities necessary, useful or otherwise requested or required by a Regulatory Authority or as a condition or in support of obtaining or maintaining a Regulatory Approval. For clarity, Development does not include Research or Manufacturing. When used as a verb, "Develop" means to engage in Development.

1.60 "**Development Milestone Event**" has the meaning set forth in Section 8.3.1.

1.61 "**Development Milestone Payment**" has the meaning set forth in Section 8.3.1. **1.62** "**Discontinued TAA**" has the meaning set forth in Section 4.4.1.

1.63 "**Dispute**" has the meaning set forth in Section 14.5.1.

1.64 "**Drug Approval Application**" means: (a) a BLA; or (b) an application for authorization to market or sell a biopharmaceutical product submitted to a Regulatory Authority in any country or jurisdiction other than the U.S. including with respect to the EU or any EU member state, a marketing authorization application filed with the EMA pursuant to the Centralized Approval Procedure or with the applicable Regulatory Authority of a country in the European Economic Area pursuant to the decentralized procedure, mutual recognition or any national approval procedure (in each case, an "**MAA**").

1.65 "**Effective Date**" has the meaning set forth in the preamble hereto.

1.66 "**EMA**" means the European Medicines Agency or any successor agency in the EU having substantially the same function.

1.67 "**EU**" means the European Union, as its membership may be constituted from time to time, and any successor thereto; except that for purposes of this Agreement, the EU will be deemed to include France, Germany, Italy, Spain, and the United Kingdom, irrespective of whether any such country is a member state of the European Union.

1.68 "**EU5**" means the following countries: France, Germany, Spain, Italy, and the United Kingdom (irrespective of its status as a member or non-member of the European Union and comprising the territories of England, Wales, Scotland and Northern Ireland).

1.69 "**Excluded Claim**" has the meaning set forth in Section 14.5.4.

1.70 "**Excluded Individual**" has the meaning set forth in Section 11.3.

1.71 "**Executive Officers**" means, with respect to a Party, its President/Chief Executive Officer or his/her designee.

1.72 "**Existing Patents**" has the meaning set forth in Section 11.2.1.

1.73 "**Existing Upstream License Agreements**" means the contract(s) or agreement(s) existing at the Effective Date between [***] and any Third Party(ies) pursuant to which [***] has in-licensed or otherwise acquired Control (other than ownership) of any Patent, Know-How, or other intellectual property right [***], including: [***].

1.74 "**Exploit**" or "**Exploitation**" means to make, have made, import, use, sell, or offer for sale, including to Research, Develop, Commercialize, register, Manufacture, have Manufactured, hold, or keep (whether for disposal or otherwise), have used, export, transport, distribute, promote, market, or have sold or otherwise dispose of.

1.75 "**External Expenses**" means [***].

1.76 "**FDA**" means the United States Food and Drug Administration and any successor agency or authority having substantially the same function.

1.77 "**FDA's Disqualified/Restricted List**" has the meaning set forth in Section 11.3.

1.78 "**Field**" means the prevention prophylaxis, treatment, amelioration, or diagnosis of solid tumor cancers in humans.

1.79 "**First Commercial Sale**" means, [***].

1.80 "**Fiscal Quarter**" means each successive period of three (3) calendar months commencing on April 1, July 1, October 1, and January 1, *provided*, *however*, that: (a) the first Fiscal Quarter of the Term shall extend from the Effective Date to the end of the first full Fiscal Quarter thereafter, and (b) the last Fiscal Quarter of the Term shall end on the date of termination or expiration of this Agreement.

1.81 "**Fiscal Year**" means the period beginning on April 1 and ending on March 31 of the following calendar year; *provided*, *however*, that: (a) the first Fiscal Year of the Term shall commence on the Effective Date and end on the first March 31 thereafter, and (b) the last Fiscal Year of the Term shall commence on April 1 of the Fiscal Year in which this Agreement terminates or expires and end on the date of termination or expiration of this Agreement.

1.82 "**Force Majeure**" has the meaning set forth in Section 14.1.

1.83 "**FTE**" means a qualified full-time person, or more than one person working the equivalent of a full-time person, where "full time" is based upon a total of [***] per Fiscal Year of scientific or technical work, or the oversight, management or analysis of scientific or technical work, carried out by one or more duly qualified employees of Poseida. Overtime, and work on weekends, holidays, and the like will not be counted with any multiplier (*e.g.*, time-and-a-half or double time) toward the number of hours that are used to calculate the FTE contribution.

1.84 "**FTE Rate**" means an initial rate of [***].

1.85 "**Good Clinical Practices**" or "**GCP**" means the then-current good clinical practice standards, requirements and procedures for Clinical Trials promulgated or endorsed by the FDA, including the FDA regulations set forth in 21 C.F.R. Parts 11, 50, 54, 56, and 312, and all analogous regulatory guidelines promulgated by the EMA, the ICH, and other Regulatory Authorities, as applicable.

1.86 "**Good Laboratory Practices**" or "**GLP**" means the then-current good laboratory practice standards promulgated or endorsed by the FDA as defined in 21 C.F.R. Part 58 and analogous applicable laws in any other country or jurisdiction and all additional Regulatory Authority documents or regulations that replace, amend, modify, supplant, or complement any of the foregoing.

1.87 "**Good Manufacturing Practices**" or "**GMP**" means the then-current good manufacturing practice standards promulgated or endorsed by the FDA as defined in 21 C.F.R. Parts 210, 211, 601, and 610 as such regulations may be amended from time to time, and analogous applicable laws in any other country and all additional Regulatory Authority documents or regulations that replace, amend, modify, supplant, or complement any of the foregoing.

1.88 "**Governmental Authority**" means any applicable government authority, court, tribunal, arbitrator, agency, department, bureau, commission, council, legislative body or other instrumentality of: (a) any government of any country or territory, (b) any nation, state, province, region, county, city, or other political subdivision of any of the foregoing, or (c) any supranational body; in each case, including any Regulatory Authority,

1.89 "**Identical Allo-T Cell**" means, [***].

1.90 "**In-Licensed Patents**" has the meaning set forth in Section 11.2.1.

1.91 "**IND**" means: (a) any Investigational New Drug Application, as defined in the U.S. Federal Food, Drug and Cosmetics Act, filed with the FDA pursuant to 21 C.F.R. Part 312, or any successor application thereof; or (b) any comparable filing(s) outside the U.S. (such as a clinical trial authorization in the EU) necessary to commence Clinical Trials; and in each case, including all supplements, protocols and amendments that may be filed with respect to the foregoing.

1.92 "**IND-Enabling Data Package**" means the content to be included in the data package delivered to the JSC for selection of the Licensed Product, as further described in Schedule 1.92.

1.93 "**IND-Enabling Studies**" means studies, including ADME (absorption, distribution, metabolism, and excretion) and GLP toxicology studies, required for the preparation of the CMC (chemistry, manufacturing, and controls) section of the applicable IND, including studies relating to analytical methods and purity analysis, and formulation and Manufacturing development studies.

1.94 "**Indemnification Claim Notice**" has the meaning set forth in Section 12.3.

1.95 "**Indemnified Party**" has the meaning set forth in Section 12.3.

1.96 "**Indirect Taxes**" has the meaning set forth in Section 8.6.

1.97 "**Initial Dispute Resolution Period**" has the meaning set forth in Section 14.5.1.

1.98 "**iNKG2D CAR**" means [***].

1.99 "**JMC**" has the meaning set forth in Section 2.2.

1.100 [***].

1.101 "**Joint Other IP**" has the meaning set forth in Section 9.2.1(d).

1.102 "**Joint Patents**" has the meaning set forth in Section 9.3.1(a).

1.103 "**Joint Steering Committing**" or "**JSC**" has the meaning set forth in Section 2.1.1.

1.104 "**JRC**" has the meaning set forth in Section 2.2.

1.105 "**Know-How**" means all knowledge of a technical, scientific, business and other nature, including know-how, technology, inventions (whether or not patentable), means, methods, processes, practices, formulae, instructions, skills, techniques, procedures, experiences, ideas, technical assistance, designs, drawings, assembly procedures, computer programs, apparatuses, specifications, data, results and other material, regulatory data, and other biological, chemical, pharmacological, toxicological, pharmaceutical, physical and analytical, pre-clinical, clinical, safety, manufacturing and quality control data and information, including study designs and protocols, reagents (e.g., nucleic acid and amino acid sequences, plasmids, proteins, cell lines, assays and compounds) and biological methodology; in each case (whether or not confidential, proprietary, patented or patentable, of commercial advantage or not) in written, electronic or any other form now known or hereafter developed.

1.106 "**License**" has the meaning set forth in Section 3.1.

1.107 "**Licensed Product**" means any Research Product designated as a Licensed Product in accordance with Section 4.4.2 including all forms, presentations, strengths, doses and formulations (including any method of delivery) and any Modifications thereof, provided that the Licensed Product does not include [***].

1.108 "**Licensed Product Designation**" has the meaning set forth in Section 4.4.2(b).

1.109 "**Licensed Product Designation Date**" means the date when the JSC approves a Licensed Product Designation, such that a Research Product becomes a Licensed Product.

1.110 "**Licensed Product Trademarks**" means the Trademarks to be used by Xyphos for the Commercialization of any Licensed Products in the Field in the Territory and any registrations thereof or any pending applications relating thereto in the Territory (excluding, in any event, any Trademarks that include any corporate name or logo of the Parties or their Affiliates).

1.111 "**Listing Rules**" means the listing rules of any exchange or listing organization on which such Party's or its Affiliate's securities are traded or listed.

1.112 "**Losses**" means all losses, damages, liabilities, deficiencies, claims, actions, judgments, settlements, interest, awards, penalties, fines, costs, or expenses of whatever kind, including professional fees and reasonable attorneys' fees.

1.113 "**Manufacture**" and "**Manufacturing**" means all activities related to the production, manufacture, processing, purifying, formulating, filling, finishing, packaging, labeling, shipping, and holding of a biopharmaceutical product, or any intermediate thereof, including process development, test method development and stability testing, process

qualification and validation, scale-up, pre-clinical, clinical and commercial manufacture and analytic development, product characterization, stability testing, quality assurance, and quality control. When used as a verb, "Manufacture" means to engage in Manufacturing by itself or through a Third Party.

1.114 "**Manufacturing Process Lock**" means the lock of the Manufacturing process for a Product immediately before commencement of the first GMP Manufacturing campaign for such Product.

1.115 "**Manufacturing Process Lock Notification**" has the meaning set forth in Section 6.3.

1.116 "**Manufacturing Tech Transfer**" has the meaning set forth in Section 6.3.

1.117 "**Manufacturing Tech Transfer Completion**" means: [***].

1.118 "**Manufacturing Tech Transfer Plan**" has the meaning set forth in Section 6.3.

1.119 "**MicAbody**" means [***].

1.120 "**Milestone Payments**" means Development Milestone Payments and Commercial Milestone Payments.

1.121 "**Modifications**" means [***].

1.122 "**Net Sales**" means [***].

1.123 "**NKG2D**" means Natural Killer G2D Receptor.

1.124 "**Nomination Declaration**" means, with respect to a Research Product, that: (a) such Research Product has demonstrated sufficient evidence in the therapeutic hypothesis, modality and potential value to justify investment toward an IND as determined in writing by Xyphos' Candidate Nomination Declaration Committee in accordance with Xyphos' internal policies and procedures, (b) Xyphos notifies Poseida that it wishes for the Parties to perform the Manufacturing Tech Transfer for such Research Product in accordance with ARTICLE 6, or (c) IND-Enabling Studies are initiated with respect to such Research Product.

1.125 "**Non-Breaching Party**" has the meaning set forth in Section 13.2.1.

1.126 "**Other IP**" has the meaning set forth in Section 9.2.1(d)

1.127 "**Owned Patents**" has the meaning set forth in Section 11.2.1.

1.128 "**Party**" and "**Parties**" has the meaning set forth in the preamble hereto.

1.129 "**Patents**" means (a) all national, regional and international patents and patent applications, including provisional patent applications; (b) all patent applications filed either from such patents, patent applications or provisional applications or from an application claiming priority from either of these; (c) any and all patents that have issued or in the future issue from the foregoing patent applications ((a) and (b)); (d) any and all extensions or restorations by existing or future extension or restoration mechanisms, including revalidations, reissues, renewals, substitutions, re-examinations and extensions (including any patent term adjustments, patent term extensions, supplementary protection certificates and the like) of the foregoing patents or patent applications ((a), (b), and (c)); and (e) any similar rights, including so-called pipeline protection or any importation, revalidation, confirmation or introduction patent or registration patent or patent of additions to any of such foregoing patent applications and patents.

1.130 "**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, including a government or political subdivision, department, or agency of a government.

1.131 "**Phase I Trial**" means a Clinical Trial of a Licensed Product with the primary objective of characterizing its safety, tolerability, or pharmacokinetics as described in 21 C.F.R. 312.21(a), as amended from time to time, or a comparable Clinical Trial prescribed by the relevant Regulatory Authority in a country other than the United States.

1.132 "**piggyBac® DNA Delivery System**" means Poseida's proprietary transposon-based DNA insertion system comprising a DNA transposon, and a transposase, wherein the transposase is delivered as DNA, protein or mRNA molecule.

1.133 "**Pivotal Trial**" means a Clinical Trial of a Licensed Product on a sufficient number of subjects that satisfies Sections 1.133.1, 1.133.2 and/or 1.133.3:

1.133.1 Such Clinical Trial: (a) satisfies the requirements of 21 C.F.R. 312.21(c) or a comparable Clinical Trial prescribed by the relevant Regulatory Authority in a country other than the United States, and (b) is intended to provide sufficient efficacy data to support Regulatory Approval, without the need of an additional Clinical Trials.

1.133.2 Any other Clinical Trial that the applicable Regulatory Authority has agreed (e.g., pursuant to an agreement with or statement from the FDA or the EMA on a "Special Protocol Assessment" or equivalent or other guidance or minutes issued by the FDA or EMA), prior to the administration of the first dose of the applicable Licensed Product to the third patient participating in such Clinical Trial is intended to provide sufficient efficacy data to support Regulatory Approval without the need for additional Clinical Trials.

1.133.3 If a Clinical Trial does not constitute a Pivotal Trial pursuant to Sections 1.133.1 or 1.133.2 above at the time of the administration of the first dose of the applicable Licensed Product to the third patient participating in such Clinical Trial, but is later determined by the applicable Regulatory Authority to be sufficient to form the primary basis of an efficacy claim in an application for Regulatory Approval (including in any supplement to a Regulatory Approval application), then such Clinical Trial shall be deemed a Pivotal Trial and initiation of such Pivotal Trial shall be deemed to have occurred on the date of such determination by the applicable Regulatory Authority.

1.134 "Poseida" has the meaning set forth in the preamble hereto.

1.135 "**Poseida Indemnitees**" has the meaning set forth in Section 12.1.

1.136 "**Poseida Know-How**" means, subject to Section 3.8.2(c), all Know-How that is: (a) Controlled by Poseida or any of its Affiliates on or after the Effective Date and at any time during the Term, (b) not generally known, and (c) necessary or reasonably useful for the Exploitation of any Product. [***].

1.137 "**Poseida Patents**" means, subject to Section 3.8.2(c), all of the Patents that are (a) Controlled by Poseida or any of its Affiliates as of the Effective Date and at any time during the Term, and (b) necessary or reasonably useful (or, with respect to Patent applications, would be necessary or reasonably useful if such Patent applications were to issue) for the Exploitation of any Product, or which otherwise Cover any Product. [***].

1.138 "**Poseida Reimbursable Research Costs**" has the meaning set forth in Section 4.2.2.
1.139 "**Poseida Technology**" means the Poseida Patents and the Poseida Know-How. **1.140** "**Product**" means a Research Product and/or a Licensed Product, as applicable. **1.141** "**Product-Specific IP**" has the meaning set forth in Section 9.2.1(c).
1.142 "**Product-Specific Know-How**" has the meaning set forth in Section 9.2.1(c). **1.143** "**Product-Specific Patents**" has the meaning set forth in Section 9.2.1(c).

1.144 "**Regulatory Approval**" means, with respect to a country or other jurisdiction in the Territory, any and all Drug Approval Applications, licenses, registrations or authorizations of any Regulatory Authority necessary to commercially distribute, sell, or market the Licensed Products in such country or other jurisdiction (including labeling approval, marketing authorizations and pricing and reimbursement approval where applicable).

1.145 "**Regulatory Authority**" means any applicable supra-national, federal, national, regional, state, provincial, or local governmental or regulatory agencies, departments, bureaus, commissions, councils, or other government entities (e.g., the FDA or DEA) regulating or otherwise exercising authority with respect to activities contemplated in this Agreement, including the Exploitation of the Licensed Products in the Field in the Territory.

1.146 "**Regulatory Documentation**" means all: (a) Drug Approval Applications, Regulatory Approvals and (b) correspondence and reports submitted to or received from Regulatory Authorities (including minutes of calls and in-person meetings and official contact reports relating to any communications with any Regulatory Authority) and adverse event files, in each case ((a) and (b)) relating to any Product, the Allo-T Platform or Allo-T Cells.

1.147 "**Regulatory Exclusivity**" means exclusive marketing rights or data exclusivity rights (other than Patents) conferred by any Regulatory Authority with respect to a Licensed Product that confers an exclusive Commercialization period during which Xyphos or its Affiliates or Sublicensees have the exclusive right to market and sell such Licensed Product in such country for a specified period, such as new clinical data exclusivity, new chemical entity exclusivity, new use or indication exclusivity, new formulation exclusivity, orphan drug exclusivity, reference product exclusivity, or pediatric exclusivity.
1.148 "**Replacement TAA**" has the meaning set forth in Section 4.4.1. **1.149** "**Requesting Party**" has the meaning set forth in Section 8.11.

1.150 "**Research**" means any and all activities directed to the research or pre-clinical development of a biopharmaceutical product, including the characterization, design, discovery, generation, identification, conduct of non-clinical or pre-clinical studies, optimization, formulation, or profiling of a biopharmaceutical product. For clarity, Research does not include Development or Manufacturing.

1.151 "**Research Activities**" has the meaning set forth in Section 4.2.1. **1.152** "**Research Costs**" has the meaning set forth in Section 4.2.2. **1.153** "**Research Plan**" has the meaning set forth in Section 4.2.1.

1.154 "**Research Product**" means [***].

1.155 "**Research Program**" has the meaning set forth in Section 4.1.

1.156 "**Research Term**" means, on a Research Program-by-Research Program basis, that portion of the Term commencing upon the adoption of the Research Plan by the JSC and ending on the earlier of: [***].

1.157 "**Reserved TAA**" has the meaning set forth in Section 4.3.1(a). **1.158** "**Royalty Payments**" has the meaning set forth in Section 8.4.1.

1.159 "**Royalty Term**" means, on a country-by-country and Licensed Product-by-Licensed Product basis, the time period commencing on the First Commercial Sale of a Licensed Product in a country and continuing until the latest of: (a) expiration of the last Valid Claim Covering such Licensed Product in such country, (b) expiration of any Regulatory Exclusivity for such Licensed Product in such country or (c) [***] following such First Commercial Sale of such Licensed Product in such country.

1.160 "**Safety Switch**" means Poseida's proprietary [***].

1.161 "**Selection Period**" means [***].

1.162 "**Segregation**" has the meaning set forth in Section 3.8.2(a). **1.163** "**Specified Studies**" has the meaning set forth in Section 4.2.2. **1.164** "**Subcommittee**" has the meaning set forth in Section 2.2.

1.165 "**Sublicensee**" means a Third Party to which Xyphos or any of its Affiliates has granted a sublicense under the grant in Section 3.4.

1.166 "**TAA**" means a single specific naturally occurring human tumor-associated antigen.

1.167 "**TAA-MicAbody**" means a MicAbody that binds specifically to the applicable TAA.

1.168 "**TAA Replacement Notice**" has the meaning set forth in Section 4.4.1.

1.169 "**Technical Update**" has the meaning set forth in Section 6.3.5.

1.170 "**Term**" has the meaning set forth in Section 13.1.1.

1.171 "**Territory**" means the entire world.

1.172 "**Third Party**" means any Person other than a Party or a Party's Affiliate.

1.173 "**Third Party IP Claim**" has the meaning set forth in Section 9.5.

1.174 "**TME**" means a single specific naturally occurring human antigen associated with a tumor microenvironment.

1.175 "**TME-MicAbody**" means a MicAbody that binds specifically to the applicable TME.

1.176 "**Tox Study Completion**" means, on a Research Product-by-Research Product basis, the completion of the Poseida-run genotoxicity and toxicity studies listed in Schedule 1.92 for such Research Product and the delivery of final reports for such studies.

1.177 "**Trademark**" means any word, name, symbol, color, designation or device or any combination thereof that functions as a source identifier, including any trademark, trade dress, brand mark, service mark, trade name, brand name, logo or business symbol, whether or not registered.

1.178 "**TSCM**" means Poseida's proprietary [***].

1.179 "**United States**" or "**U.S.**" means the United States of America and its territories and possessions (including the District of Columbia and Puerto Rico).

1.180 "**Valid Claim**" means a claim of: (a) an issued and unexpired (x) Poseida Patent or (y) Product-Specific Patent for which Poseida or its Affiliates, or their respective employees, personnel or service providers were an inventor or joint-inventor, which in either case (x) or (y), [***] has not (i) expired or been canceled, (ii) been revoked, or declared invalid by an unreversed and unappealable decision of a court or other appropriate body of competent jurisdiction or by a legal opinion of a jointly chosen law firm, (iii) been admitted to be invalid or unenforceable through reissue, disclaimer, or otherwise or (iv) been abandoned, and (v), [***] or (b) a pending application of (x) a Poseida Patent or (y) a Product-Specific Patent for which Poseida or its Affiliates, or their respective employees, personnel or service providers were an inventor or joint-inventor, which in either case (x) or (y), [***] and (II) such application has not been pending for more than [***] from the earliest priority date and which claim has not been revoked, cancelled, withdrawn, held invalid by any applicable governmental authority or court (from which no appeal is or can be taken), or abandoned (without the possibility of refiling).

1.181 "**Voting Stock**" has the meaning set forth in Section 1.35.
1.182 "**Withholding Amount**" has the meaning set forth in Section 8.7. **1.183** "**Withholding Party**" has the meaning set forth in Section 8.7. **1.184** "**Xyphos Indemnitees**" has the meaning set forth in Section 12.2.

1.185 "**Xyphos Know-How**" means all Know-How that is: (a) Controlled by Xyphos or any of its Affiliates on or after the Effective Date, (b) not generally known, and (c) necessary for Poseida to conduct activities allocated to it under the applicable Research Plan. [***].

1.186 "**Xyphos Materials**" means [***].

1.187 "**Xyphos Patents**" means all of the Patents that are: (a) Controlled by Xyphos or any of its Affiliates on or after the Effective Date, and (b) necessary for Poseida, its Affiliates or subcontractors to conduct activities allocated to them under the applicable Research Plan. [***].

1.188 "**Xyphos Subcontractor**" has the meaning set forth in Section 3.5.1.

1.189 "**Xyphos Technology**" means, collectively, the Xyphos Patents and the Xyphos Know-How. [***].

ARTICLE 2
GOVERNANCE

2.1 Joint Steering Committee.

2.1.1 Formation and Composition. The Parties will establish a Joint Steering Committee ("**JSC**") within [***] of the Effective Date. The JSC will have [***] representatives from each Party (or such other equal number of representatives as the Parties may mutually agree) to oversee the Research Programs. The JSC will seek to reach decisions by unanimous consensus with each Party having [***]. From time to time, each Party may add or substitute one (1) or more of its representatives to the JSC on written notice to the other Party (which may be by email). Neither Party may appoint any representative to the JSC that is not an employee of such Party or one of its Affiliates without the prior written consent of the other Party (which may be by e-mail). The JSC will be co-chaired by one (1) representative of Xyphos and one (1) representative of Poseida.

2.1.2 Meetings. The JSC will hold periodic meetings (at least quarterly), *provided* that either Party may request a meeting of the JSC at any time upon [***] notice to the other Party, with the understanding that the other Party will use [***] to comply with such request, but such other Party will not be in breach of this Agreement in the event that it is unable to comply with such request despite using [***] to conduct a JSC meeting as promptly as practicable. JSC meetings may be conducted by telephone, videoconference (or other similar technologies), or in person as determined by the JSC members. A quorum of the JSC shall exist whenever there is present at a meeting at least [***] JSC member appointed by each Party. Each Party may, subject to the other Party's prior written consent, which may be by e-mail (not to be unreasonably withheld, conditioned, or delayed), invite (a) employee(s) of such Party to attend meetings as non-voting observers, or (b) consultant(s) of such Party; *provided* that in each case ((a) or (b)), prior to attending any such meeting, such employees or consultants shall be bound by obligations of confidentiality, non-disclosure, and non-use no less restrictive than those set forth in ARTICLE 10 and obligations as to ownership of inventions and data consistent with those set forth in this Agreement; *provided, further* that any JSC meetings that includes employees or consultants of either Party may, at the request of any JSC member, include a closed session consisting of only JSC members.

2.1.3 Agenda and Minutes. No fewer than [***] prior to each JSC meeting, and in any event as soon as reasonably practicable, each Party shall use good faith efforts to disclose to the other Party any proposed agenda items together with all appropriate information with respect to such proposed agenda items. Discussion of interim results under the

Research Programs will be included in the agenda of each JSC meeting. The Alliance Managers shall prepare and circulate to all members of the JSC for review draft minutes of each JSC meeting within [***] after such meeting. Such minutes shall provide a description, in reasonable detail, of the discussions at the meeting, a list of decisions made by the JSC, a list of action items made by the JSC, and a list of material issues not resolved by the JSC. The Parties shall approve in writing (which may be by email) the minutes of each meeting promptly.

2.1.4 Specific Responsibilities. The JSC shall:

(a) approve the initial Research Plan for the second Research Program;

(b) review and approve any updates or amendments to the Research Plans for each Research Program;

(c) oversee the Research Activities for each Research Program;

(d) select the first TAA and second TAA, and if applicable, any replacement TAA from the list of Reserved TAAs;

(e) subject to Section 4.4.2, approve the designation of any Research Product as a Licensed Product;

(f) review and approve [***];

(g) establish a joint manufacturing Subcommittee to prepare a Manufacturing Tech Transfer Plan for approval by the JMC, oversee the Manufacturing Tech Transfer and the activities under the Manufacturing Tech Transfer Plan pursuant to ARTICLE 6, and to receive updates regarding any material changes to the Cost of Goods in respect of any supplies made under this Agreement;

(h) confirm completion of the comparability protocol final report in connection with the Manufacturing Tech Transfer, or shall procure that the JMC does so;

(i) establish, dissolve, and oversee Subcommittees, as appropriate, to carry out its functions and resolve any Disputes that arise in such Subcommittees. At the Effective Date, the Parties have identified a need for a joint manufacturing Subcommittee and joint research Subcommittee, who would each oversee their related activities and report their findings to the JSC, as further set out in Section 2.2; and

(j) perform such other functions as are set forth herein or as the Parties may mutually agree in writing, except where in conflict with any provision of this Agreement.

2.1.5 JSC Final Decision-Making.

(a) If the JSC cannot, or does not, reach consensus on an issue, then the Dispute shall first be referred to the Executive Officers of the Parties, who shall confer in good faith on the resolution of the issue. Any final decision mutually agreed to by the Executive Officers shall be

conclusive and binding on the Parties. If the Executive Officers are not able to agree on the resolution of any such issue within [***] after such issue was first referred to them, then:

(i) With respect to [***], such Dispute shall be finally and definitively resolved by [***]; and

(ii) with respect to [***] shall be resolved pursuant to Section 14.5.

2.1.6 Limitation on Authority. The JSC shall have only such powers as are specifically delegated to it under this Agreement or by express mutual agreement of the Parties, and for clarity the JSC shall not have any authority or ability to: (a) modify, amend or waive the terms or conditions of this Agreement; or (b) make any decision that, under the terms of this Agreement, requires Xyphos' or Poseida's consent, approval, or agreement; or the consent, approval, or agreement of both Parties.

2.1.7 Expenses. Each Party shall be responsible for all travel and related costs and expenses for its members and representatives to attend meetings of, and otherwise participate in, the JSC.

2.1.8 Dissolution of the JSC. With respect to each Licensed Product, the JSC's responsibilities shall terminate automatically upon the earlier to occur of: [***]. Thereafter, each Party shall designate, to the extent necessary, a contact person for the exchange of information under this Agreement, and decisions of the JSC, if any, shall be decisions as between the Parties, with [***].

2.2 Appointment of Subcommittees and Project Teams. The JSC shall: (a) form a Joint Research Committee ("**JRC**") within [***] of the Effective Date to delegate its responsibilities to oversee the Parties' activities under each Research Plan; (b) form a Joint Manufacturing Committee ("**JMC**"), as necessary, to delegate its responsibilities to oversee the development, improvement, or validation and performance of the Manufacturing process for each Research Program and to coordinate and oversee the Manufacturing Tech Transfer; and (c) be empowered to create such subcommittees of itself and project teams as it may deem appropriate or necessary each ((a) through (c)), a ("**Subcommittee**").

2.2.1 Membership. The Parties, through their respective Alliance Managers, shall align on membership of each Subcommittee ensuring that representatives are appropriate for the task then being undertaken, in terms of their seniority, function in their respective organizations, training and experience. The Subcommittee will be co-chaired by one (1) representative of Xyphos and one (1) representative of Poseida. From time to time, each Party may substitute one (1) or more of its representatives to each Subcommittees on written notice to the other Party (which may be by email).

2.2.2 Meetings. The Subcommittee will hold periodic meetings (at least quarterly), *provided* that either Party may request a meeting of the Subcommittee at any time upon [***] notice to the other Party, with the understanding that the other Party will use [***] to comply with such request, but such other Party will not be in breach of this Agreement in the event that it is unable to comply with such request despite using [***] to conduct a Subcommittee meeting as promptly as practicable. Subcommittee meetings may be conducted by telephone, videoconference (or other similar technologies), or in person as determined by the Subcommittee members. A quorum of the Subcommittee shall exist whenever there is present at a meeting at least [***] Subcommittee member appointed by each Party. Each Party may, subject to the other Party's prior written consent (not to be unreasonably withheld, conditioned, or delayed), invite: (a) employee(s) of such Party to attend meetings as non-voting observers, or (b) consultant(s) of such Party; *provided* that in each case ((a) or (b)), prior to attending any such meeting, such employees or consultants shall be bound by obligations of confidentiality, non-disclosure, and non-use no less restrictive than those set forth in ARTICLE 10 and obligations as to ownership of inventions and data consistent with those set forth in this Agreement; *provided, further* that any Subcommittee meetings that includes employees or consultants of either Party may, at the request of any Subcommittee member, include a closed session consisting of only Subcommittee members.

2.2.3 Agenda and Minutes. No fewer than [***] prior to each Subcommittee meeting, and in any event as soon as reasonably practicable, each Party shall use good faith efforts to disclose to the other Party any proposed agenda items together with all appropriate information with respect to such proposed agenda items. The Alliance Managers (or an appropriate member from a Party as may be agreed to by the other Party) of the Parties shall prepare and circulate to all members of the Subcommittee for review draft minutes of each Subcommittee meeting within [***] after such meeting. Such minutes shall provide a description, in reasonable detail, of the discussions at the meeting, a list of decisions made by the Subcommittee, a list of action items made by the Subcommittee, and a list of material issues not resolved by the Subcommittee. The Parties shall approve in writing (which may be by email) the minutes of each meeting promptly.

2.2.4 Subcommittee Decision-Making. From the date of its creation until its dissolution, pursuant to Section 2.1.4(i), each Subcommittee shall oversee the matters delegated to it by the JSC and reach decisions by unanimous consensus with each Party having [***]. If a Subcommittee is not able to reach consensus on any matter within its purview at a meeting or such longer period as the applicable Subcommittee members agree, the matter shall be referred to the JSC, which shall resolve such matter in accordance with Section 2.1.5.

2.2.5 Subcommittee Dissolution. The JSC shall determine the date of dissolution of Subcommittees pursuant to Section 2.1.4(i), except that with respect to each Research Product or Licensed Product (a) the JRC shall not be dissolved before the completion of all Research Activities under all Research Plans, and (b) the JMC shall not be dissolved before the Completion of the Phase I Trial for a Licensed Product for the last remaining Research Program.

2.3 Alliance Managers. Promptly following the Effective Date, each Party shall designate one or more individuals to act as the primary business contact for such Party for matters related to this Agreement (such Party's "**Alliance Manager**"), unless another contact is designated by the Parties for a particular purpose. The Alliance Managers shall promote communication and collaboration between the Parties, ensure appropriate decision making, and assist in the resolution of potential and pending issues and potential Disputes in a timely manner. The Alliance Managers may attend all meetings of the committees and teams contemplated herein as non-voting participants. Either Party may replace its Alliance Manager at any time by notifying the other Party's Alliance Manager in writing (which may be by email).

ARTICLE 3
GRANT OF RIGHTS

3.1 Grant of Rights.

3.1.1 License Grants to Xyphos.

(a) *Research Product*. During the Research Term [***], Poseida hereby grants to Xyphos an exclusive non-transferable (except as permitted pursuant to Section 14.2), worldwide, royalty-free license (or sublicense), with the right to grant sublicenses through multiple tiers (in accordance with Section 3.4), under the Poseida Technology solely for Xyphos to conduct those activities assigned to Xyphos under the Research Plan for each Research Program.

(b) *Licensed Product*. Poseida hereby grants to Xyphos, effective upon the Licensed Product Designation Date for each Research Program, an exclusive (including with regards to Poseida), non-transferable (except as permitted pursuant to Section 14.2), worldwide and royalty-bearing license (or sublicense), with the right to grant sublicenses through multiple tiers (in accordance with Section 3.4), under the Poseida Technology, in each case, to Research, Develop and Commercialize and otherwise Exploit (other than Manufacture) such Licensed Product in the Field in the Territory. Notwithstanding the foregoing, such license excludes the right to use, incorporate or practice any of the Poseida Technology in whole or in part in products other than the Licensed Products.

(c) *Manufacturing*. Poseida hereby grants to Xyphos, effective upon the date of the Manufacturing Tech Transfer Completion for a Product, an exclusive, non-transferable (except as permitted pursuant to Section 14.2), worldwide, royalty-bearing license (or sublicense), with the right to grant sublicenses through multiple tiers (in accordance with Section 3.4), under the Poseida Technology, to Manufacture and have Manufactured the Products in the Field in the Territory.

3.1.2 *License Grant to Poseida*. During the Research Term, Xyphos hereby grants to Poseida a non-exclusive, non-transferable (except as permitted pursuant to Section 14.2), non-sublicensable (except as set out in Section 3.5.2), worldwide, royalty-free license, under the Xyphos Technology solely for Poseida to conduct those activities assigned to it under the Research Plan and any Manufacturing obligations under ARTICLE 6, for each Research Product in the Field in the Territory.

3.2 Upstream Licenses Obligations. [***].

3.3 Excluded Agreements. Notwithstanding anything to the contrary herein, the licenses granted by Poseida hereunder do not grant to Xyphos rights or licenses under [***].

3.4 Sublicensing. Xyphos shall have the right to grant sublicenses (or further rights of reference), through multiple tiers of sublicensees, under the licenses granted under Section 3.1.1 to any of its Affiliates and other Persons without the prior consent of Poseida; *provided* that (a) any such sublicense agreements shall be in writing and comply with terms consistent with the terms and conditions of this Agreement, (b) Xyphos informs Poseida about on-going negotiations with a potential Sublicensee, (c) Xyphos provides to Poseida a copy of the sublicense agreements entered into with each Sublicensee promptly, and in any event within [***], after such sublicense being entered into, which may be redacted to remove sensitive information that is not necessary for Poseida to determine Xyphos' compliance with the terms and conditions of this Agreement, and (d) Xyphos shall remain responsible for the performance of all of its sublicensees to the same extent as if such activities were conducted by Xyphos, and Xyphos shall remain responsible for any payments due to Poseida under this Agreement with respect to the activities of any sublicensees.

3.5 Subcontracting.

3.5.1 Xyphos shall have the right to subcontract any or all of its obligations under this Agreement without the prior consent of Poseida solely to service providers acting on behalf

and for the benefit of Xyphos (each, a "**Xyphos Subcontractor**") and grant a sublicense to such Xyphos Subcontractor solely to the extent necessary to perform such activities; *provided* that any subcontract entered into by Xyphos will not relieve Xyphos of any obligations delegated thereunder.

3.5.2 Poseida shall have the right to subcontract any or all of its obligations under this Agreement to the extent that the activities to be subcontracted are identified in the applicable Research Plan as being eligible for subcontracting and the subcontractor is either identified in the applicable Research Plan or is otherwise approved by Xyphos in writing. Where Poseida appoints a subcontractor, it shall have the right to grant a sublicense under the license granted in Section 3.1.2 to such subcontractor solely to the extent necessary to enable such subcontractor to perform such activities; *provided* that any such subcontract entered into by Poseida will not relieve Poseida of any obligations delegated thereunder.

3.6 No Other Rights Granted. Except as expressly provided herein, no Party grants any other right or license, including any rights or licenses to any Patents, Know-How, regulatory documentation, any corporate names, Trademarks, or logos owned or used by such Party or any of its Affiliates, or any other Patent or intellectual property rights not otherwise expressly granted herein, whether by estoppel, implication or otherwise. Xyphos shall not, nor shall it permit any of its Affiliates or Sublicensees to, practice any Patents, Know-How or other intellectual property rights licensed to it by Poseida outside the scope of the licenses granted to it under this Agreement. For clarity, with respect to each Product, the licenses granted to Xyphos in Section 3.1.1 exclude any right to use the Allo-T Cell or any component of the Allo-T Platform for any purpose other than for such Product. Notwithstanding the foregoing, to the extent required by Applicable Law in a country or other jurisdiction in the Territory, the promotional materials, packaging, and product labeling used by Xyphos and its Affiliates in connection with the Licensed Products in such country or other jurisdiction shall contain: (a) the corporate name of Poseida (and to the extent required by Applicable Laws, Poseida hereby grants Xyphos a non-exclusive license, with the right to sublicense, to use Poseida's name), and (b) the logo and corporate name of the manufacturer (if other than Xyphos or an Affiliate), in each case (a) and (b), subject to Poseida's prior written consent, not to be unreasonably withheld, conditioned or delayed. Further, notwithstanding the licenses granted to Xyphos in Section 3.1.1, Poseida reserves on behalf of itself and its subcontractors appointed in accordance with Section 3.5.2, all rights necessary or reasonably useful to allow Poseida to perform its obligations under this Agreement, including the performance of all Research Activities.

3.7 Third Party Rights. If either Party desires to obtain a license to any Patent, Know-How, or other intellectual property right of a Third Party in any country in the Territory that is necessary or reasonably useful to exploit a Licensed Product in any country in the Territory, then [***].

3.8 Exclusivity.

3.8.1 General.

(a) During [***], Poseida shall not, directly or indirectly, by itself or through any Affiliates or any other Person, [***].

(b) During the [***], Poseida shall not directly or indirectly, by itself or through any Affiliate or any other Person, [***].

(c) For clarity, Poseida shall have no exclusivity obligations with respect to [***].

3.8.2 Exception for Change of Control. Notwithstanding anything to the contrary in Section 3.8.1:

(a) [***];

(b) [***]; and

(c) [***].

3.9 Changes to Allo-T Cells. Xyphos [***].

ARTICLE 4
RESEARCH COLLABORATION

4.1 General . Subject to the terms and conditions of this Agreement, the Parties will collaborate on two (2) research programs as identified in Section 4.2 below, [***] (each, a "**Research Program**"). Each Research Program will be in respect of one (1) Research Product and will have the goal of Developing such Research Product into one (1) Licensed Product. [***].

4.2 Research Activities.

4.2.1 Research Plans. Attached hereto as Schedule 4.2.1 is the research plan for the initial Research Program. The initial research plan shall be amended within [***] of the TAA being selected for the initial Research Program, solely to reflect changes required based on the TAA selection. The research plan for the second TAA shall be prepared by the Parties and submitted to the JSC for approval within [***] after the JSC's selection of such TAA (each, a "**Research Plan**"). Each Research Plan includes (or will include) the activities of each Party with respect to each Research Product, an estimated timeline for completion of those activities by each Party and, with respect to the activities conducted by Poseida, an estimated budget of external and internal costs (any Research or Manufacture activity performed under a Research Plan or at the direction of the other Party in furtherance thereof, a "**Research Activity**").

Subject to the terms and conditions of this Agreement, each Party shall use Commercially Reasonable Efforts to perform and complete the Research Activities allocated to such Party in accordance with the timelines set forth in the Research Plan and in compliance with Applicable Laws. If the Research Plan for the second TAA is not agreed within [***] of the Effective Date, or if a Research Plan is terminated, [***].

4.2.2 Research Costs. Poseida shall be solely responsible for the first USD six million ($6 million) of External Expenses and internal expenses at the FTE Rate incurred by Poseida in conducting Research Activities; provided that [***]. In the event the Parties amend the Research Plan for the initial Research Program with respect to the Specified Studies, then notwithstanding Section 2.1.5(a), the Parties shall mutually agree on [***]. The Parties agree and acknowledge that the upfront payment set out in Section 8.1 includes funding that Poseida is obligated to use for the purpose of conducting activities under the Research Plans, and that USD six million ($6 million) of such upfront payment is a reimbursement for the performance of such activities by Poseida. Xyphos shall reimburse Poseida for its External Expenses and internal expenses at the FTE Rate for all Research Activities [***] incurred by Poseida, provided that [***] in accordance with Section 8.2. If any of the terms of the Research Plan contradict, or create inconsistencies or ambiguities with, the terms of this Agreement, then the terms of this Agreement shall govern.

4.2.3 Amendments to Research Plans. Each Research Plan shall be amended by the JSC in accordance with the decision-making rights set forth in Section 2.1.5.

4.2.4 Reports. Each Party shall provide the JSC with written reports or presentations summarizing the performance and results of the Research Program at each JSC meeting or as otherwise agreed between the Parties. Each report or presentation shall cover, in a manner consistent with such Party's customary internal procedures for preparing such reports, the Research Program activities relating to the Research Product conducted by or on behalf of such Party since the previous JSC meeting, including a summary of results, information and data generated and any activities planned with respect to the Research Program going forward.

4.3 Selection of TAAs and TMEs.

4.3.1 TAAs.

(a) Each TAA used in the Research Programs shall be selected from the mutually agreed upon pool of TAAs set forth in Schedule 4.3.1 ("**Reserved TAAs**").

(b) The initial TAA for a Research Program shall be selected by the JSC within [***] of the Effective Date. The second TAA for the second Research Program shall be selected by the JSC within [***] of the Effective Date (or such other date as mutually agreed upon by the Parties in writing).

4.3.2 TMEs. On a Research Program-by-Research Program basis, [***] the Parties may decide to add a TME-MicAbody into such Research Program, if any, in which case such initial Research Plan shall include reference to the applicable TME, which shall be selected by the Parties from the mutually agreed upon pool of TMEs set forth in Schedule 4.3.2. [***].

4.4 Research Product Designation; Licensed Product Designation.

4.4.1 Research Product Designation. At any time during the Selection Period, [***] for each Research Program, Xyphos may notify Poseida in writing that it intends to replace the applicable existing TAA with a new TAA that is a Reserved TAA and the identity of such proposed new TAA (each such notice, a "**TAA Replacement Notice**"). Within [***] following the delivery of the TAA Replacement Notice, the Parties shall collaborate in good faith to prepare and discuss an amended Research Plan (including an applicable budget) for such new TAA that was a Reserved TAA (a "**Replacement TAA**") for submission to the JSC for approval. Upon JSC approval of an amended Research Plan for such Replacement TAA: (a) such Replacement TAA shall become a new TAA for such Research Program, in each case, subject to the terms and conditions of this Agreement; (b) no Party shall have any further obligation under the prior Research Plan with respect to the TAA that is no longer applicable (the "**Discontinued TAA**") and the Discontinued TAA shall no longer be deemed a TAA or a Reserved TAA, respectively, under this Agreement; and (c) all licenses and rights granted under this Agreement in connection with the Discontinued TAA shall immediately terminate.

4.4.2 Licensed Product Designation.

(a) On a Research Program-by-Research Program basis, prior to the end of the Research Term for a particular Research Program, and within [***] from completion of the activities to generate an IND-Enabling Data Package set out in the applicable Research Plan, the Parties shall use Commercially Reasonable Efforts to provide to the JSC, at least [***] prior to the applicable JSC meeting, the IND-Enabling Data Package generated under the applicable Research Plan for a meeting where the JSC shall determine whether to designate a Research Product as a Licensed Product.

(b) The JSC shall promptly (and in any event within [***] after the receipt of the IND-Enabling Data Package (such period, the "**Determination Period**")) (i) discuss

and evaluate the IND-Enabling Data Package, and (ii) determine whether to designate such Research Product as a Licensed Product (a "**Licensed Product Designation**").

(c) During the Determination Period, and solely to the extent reasonably necessary for the JSC to determine whether to designate a Research Product as a Licensed Product, the JSC may provide a Party with written notice requesting from such Party reasonable additional information (including, as mutually agreed, the underlying information used to create the IND-Enabling Data Package, such as data listings, data sets and programs used for the analyses collected by such Party in the course of conducting Research Activities pursuant to the Research Plan) with respect thereof. Such Party shall use [***] to promptly provide such information (only to the extent such information is in such Party's possession and Control and in the form in which such information is maintained by such Party) and the time and costs incurred in preparing and providing such information shall be [***].

(d) If a Research Product is not designated as a Licensed Product within [***] after the expiration of the Research Term, or at a later date as the Parties mutually agree in writing, then the Research Plan and this Agreement shall terminate with respect to such Research Product and the applicable Research Program and TAA, and Xyphos shall have no right to Develop, Commercialize or otherwise Exploit such non-designated Research Product.

4.5 Records. Each Party shall, and shall use Commercially Reasonable Efforts to require its permitted subcontractors to, maintain complete and accurate records of all Research Activities performed, which records shall be maintained in sufficient detail and in good scientific manner appropriate for Patent and regulatory purposes and in accordance with Applicable Laws. Each Party shall document all IND-Enabling Studies in formal written study records according to Applicable Laws, including national and international guidelines such as ICH, GCP, GLP and GMP. Each Party shall have the right to review and copy such records maintained by the other Party with respect to the Research Program at reasonable times, as reasonably requested by a Party.

ARTICLE 5
DEVELOPMENT AND REGULATORY ACTIVITIES

5.1 Development Plan. Promptly after [***], Xyphos shall prepare a written plan for the Research and Development of each Licensed Product (each a "**Development Plan**"), and provide such Development Plan to Poseida, together with [***] to such Development Plan. Each Development Plan shall include an overview of the planned activities and timelines with respect to the Research and Development of the Licensed Product in the Field in the Territory, including material interactions with, and submissions to, Regulatory Authorities with respect to a Licensed Product, the timelines of conducting Clinical Trials and expected date of receipt of Regulatory Approval. Xyphos may amend each Development Plan from time to time at its sole discretion and, if such amendments are made, Xyphos shall promptly provide a copy of such amendment to Poseida.

5.2 Development Diligence . Xyphos (directly, or with or through one or more of its Affiliates, Sublicensees or contractors) shall use Commercially Reasonable Efforts to Develop (including with respect to obtaining and maintaining Regulatory Approvals) [***],

consistent with the applicable Development Plan.

5.3 Development Responsibilities . Xyphos (directly, or with or through one or more of its Affiliates, Sublicensees or contractors) shall have the sole right [***] to Develop Licensed Products, including seeking, preparing, obtaining, and maintaining Drug Approval Applications (including the setting of the overall regulatory strategy therefor), other Regulatory Approvals and other submissions, including appropriate state and federal licenses or registrations, and for conducting communications with the Regulatory Authorities, for the Licensed Products in the Field in the Territory (which shall include filings of INDs, MAAs and other filings or communications with the Regulatory Authorities). All Regulatory Approvals for the Licensed Products in the Field in the Territory shall be owned by, and shall be held in the name of, Xyphos or its Affiliates, and Xyphos or its Affiliates shall own all right, title and interest in and to all such Regulatory Approvals and all Regulatory Documentation that it generates for Licensed Products. Xyphos shall have the sole right and discretion to initiate any recall, market suspension, or market withdrawal of a Licensed Product in the Territory.

5.4 Regulatory Authority Communications. With respect to any Licensed Product:
(a) Xyphos shall have the sole and exclusive right to correspond and communicate with Regulatory Authorities regarding the Licensed Products; (b) unless required by Applicable Law, Poseida, its Affiliates, and its and their subcontractors shall not correspond or communicate with Regulatory Authorities regarding the Licensed Products without first obtaining the prior written consent of Xyphos; and (c) if Poseida, any of its Affiliates, or any of its or their subcontractors receives any correspondence or other communication from a Regulatory Authority regarding the Licensed Products, Poseida shall provide Xyphos with access to or copies of all such material written or electronic correspondence promptly after its receipt.

5.5 Regulatory Cooperation. Poseida shall, subject to Poseida's consent, not to be unreasonably withheld, conditioned or delayed, provide reasonable assistance and cooperation [***], in providing any reasonably necessary information and other support in connection with Xyphos' Development activities.

5.6 Adverse Events. As between the Parties, Xyphos shall have the sole right to set up, hold, and maintain a global safety database for Licensed Products. Xyphos shall be responsible for reporting Adverse Events, quality complaints, and any other safety data relating to Research Products and Licensed Products to the global safety database and the applicable Regulatory Authorities and responding to safety issues and to all requests of Regulatory Authorities related to the Licensed Product in the Field in the Territory. Xyphos shall promptly notify Poseida of any serious Adverse Event that requires accelerated regulatory reporting and otherwise keep Poseida informed with respect to the same.

5.7 Reports. [***] Xyphos shall provide Poseida with a written report in English summarizing the following with respect to each Licensed Product in the Field: (a) the results and progress of material Development and regulatory activities Xyphos, its Affiliates and Sublicensees have performed, or caused to be performed, since the preceding report, and (b) the future

Development and regulatory activities Xyphos, its Affiliates and Sublicensees expect to initiate during the following Fiscal Year, including any significant research or development milestones expected to be achieved, in each case, (a) and (b), in sufficient detail, to enable Poseida to satisfy any applicable requirements, as determined by Poseida [***].

5.8 No Guaranty of Success. Subject to Xyphos' obligations to use Commercially Reasonable Efforts set forth in Section 5.2, the Parties understand and agree that the conduct of Research and Development is inherently uncertain and there can be no guarantee of success.

ARTICLE 6
MANUFACTURING

6.1 Manufacturing During the Research Term. As between the Parties, during the Research Term and until achievement of Manufacturing Tech Transfer Completion for the first Research Program, [***].

6.2 Xyphos' Determination at Nomination Declaration; Supply of Clinical Trial Material

6.2.1 On a Research Program-by-Research Program basis, Xyphos shall promptly confirm in writing whether a Research Product has achieved Nomination Declaration. If a Research Product has achieved Nomination Declaration, then Xyphos may, at its sole discretion, elect by providing written notice to Poseida within [***] of the Research Product achieving Nomination Declaration, to have Poseida Manufacture and supply for Xyphos, [***] at a price per unit equal to [***], pursuant to a clinical supply agreement to be negotiated between the Parties in good faith, with a view to entering into such clinical supply agreement no later than [***] following delivery of such written notice to Poseida.

6.2.2 If Xyphos sends a written notification that the Research Product for the second Research Program has achieved Nomination Declaration, then the Parties shall enter into an amendment to the clinical supply agreement entered into pursuant to Section 6.2.1 no later than [***] following Xyphos' notification of such Nomination Declaration for the second Research Program, and Poseida shall supply to Xyphos, [***]

at a price per unit equal to [***]. At the request of Xyphos, Poseida shall provide such information reasonably requested by Xyphos to verify the accuracy of the invoices submitted by Poseida.

6.2.3 In respect of the first Research Product to achieve Nomination Declaration only, Xyphos shall pay Poseida a one-time non-refundable, non-creditable manufacturing access fee for such first Research Program of [***], which will be paid to Poseida [***]. In addition, if Poseida Manufactures [***] Xyphos will pay a reservation fee of [***] for each calendar year (or portion of any calendar year) that Poseida has Manufactured and delivered to Xyphos [***]. For clarity, no such reservation fee shall be owed if [***]. Such reservation fee payment will be made within [***] after the end of each calendar year in which such material ordered by Xyphos was delivered to Xyphos.

6.2.4 If it is necessary for Poseida to purchase any equipment used to Manufacture Product [***] the Parties shall discuss such purchase in good faith. Any equipment purchase cost would be equitably allocated across Poseida's internal programs and Third Party programs, reflecting the benefit of such equipment to such program. If, as a result of such equipment purchase, [***] and Xyphos does not agree to pay such increased amount, then the Parties shall discuss such equipment purchase in good faith, pursuant to a mechanism to be agreed in the clinical supply agreement.

6.3 Manufacturing Tech Transfer

6.3.1 Poseida shall provide written notification to Xyphos when the Manufacturing Process Lock has occurred (the "**Manufacturing Process Lock Notification**") promptly, but no later than [***] after such occurrence. The Parties shall complete and agree to a manufacturing tech transfer plan within [***] following Manufacturing Process Lock Notification (a "**Manufacturing Tech Transfer Plan**") to transfer to Xyphos [***] of Poseida Know-How, in each case which has not previously been provided to Xyphos, which is under Poseida's Control, and is necessary or reasonably useful to enable Xyphos or a Xyphos-designated Third Party to Manufacture [***] (with the activities performed or to be performed under each Manufacturing Tech Transfer Plan, "**Manufacturing Tech Transfer**"). The Manufacturing Tech

Transfer Plan would include a budget setting forth the estimated costs for such tech transfer. The Parties will initiate Manufacturing Tech Transfer no later than [***] after agreeing to the Manufacturing Tech Transfer Plan. For the avoidance of doubt, Manufacturing Tech Transfer will occur [***].

6.3.2 Poseida shall provide Xyphos with the [***] used by Poseida at the time the Manufacturing Tech Transfer Plan is agreed to and shall provide any updates with respect to [***], to Xyphos that may exist at the time of Manufacturing Tech Transfer Completion.

6.3.3 When Manufacturing Tech Transfer is commenced in accordance with Section 6.3.1, each Party will undertake all activities reasonably necessary to complete all activities set forth in the applicable Manufacturing Tech Transfer Plan allocated to such Party in accordance with the timelines set forth therein with a view to achieving Manufacturing Tech Transfer Completion. Xyphos shall be responsible for all costs and expenses incurred by either Party that do not exceed the budget set forth in the Manufacturing Tech Transfer Plan by more than [***]. Poseida shall provide reports that shall specify, in reasonable detail, the expenses incurred to complete Manufacturing Tech Transfer to compare the invoices submitted to the budget. If either Party identifies that, in performing activities under the Manufacturing Tech Transfer Plan, costs will be incurred that exceed the budget by more than [***], then such Party shall promptly notify the other Party of such, and the Parties shall discuss in good faith what action to take, which may include amending the Manufacturing Tech Transfer Plan or the associated budget. [***] Poseida shall not be obliged to perform any activities under the Manufacturing Tech Transfer Plan unless such performance of such activities will be reimbursed by Xyphos, which for internal expenses will be at the FTE Rate. Otherwise, Poseida shall be responsible for such cost overrun in excess of [***] of the budgeted amount, but less than [***] of the budgeted amount, [***].

6.3.4 For a period of [***] following Manufacturing Tech Transfer Completion, Poseida shall provide written or verbal answers to Xyphos' reasonable questions relating to the information shared under the Manufacturing Tech Transfer Plan or Section 6.3.5, using Poseida personnel who are knowledgeable about the relevant subject matter, provided that Xyphos reimburses Poseida at the FTE Rate for all such assistance.

6.3.5 On an ongoing basis, following Manufacturing Tech Transfer Completion and ending on the [***] of the date of the first IND submission for the first Licensed Product to be subject to such a submission, at least [***] each Fiscal Year (or such other frequency as mutually agreed by the Parties), Poseida shall provide to Xyphos (or through the JSC or appropriate Subcommittee), any additional Know-How related to Manufacturing Licensed Products Controlled by Poseida that Poseida is reasonably aware is within the scope of the licenses granted to Xyphos hereunder, to the extent not previously disclosed (each provision of such additional Know-How, a "**Technical Update**"). Poseida shall, [***], make appropriate personnel available to Xyphos upon

reasonable prior notice for the purpose of assisting Xyphos to understand and use such Know-How in connection with the Manufacturing of Licensed Products.

6.3.6 Following Manufacturing Tech Transfer Completion, Xyphos shall have the sole right to Manufacture and supply the Licensed Products. [***]

6.3.7 For the avoidance of doubt: (a) Xyphos shall be solely responsible for the supply of any materials required for the Product, other than manufacture and supply of [***] that Poseida has agreed to manufacture pursuant to this ARTICLE 6, and (b) Poseida shall not be required to disclose any Poseida Know-How relating to the Manufacture of a Product except as set out in this ARTICLE 6.

6.4 Upstream Payments

6.4.1 [***].

ARTICLE 7
COMMERCIALIZATION

7.1 Commercialization Generally. Xyphos (directly, or with or through one or more Affiliates, Sublicensees or contractors) shall have the sole right to Commercialize the Licensed Products in the Field in the Territory [***] subject to the terms of this Agreement.

7.2 Commercialization Diligence.

7.2.1 Xyphos shall use Commercially Reasonable Efforts to Commercialize in the Field [***].

7.2.2 Xyphos shall comply with all Applicable Law with respect to the Exploitation of the Licensed Products.

7.3 Distribution; Co-Promotion. Subject to Section 3.4, Xyphos (and its Affiliates that are granted a sublicense pursuant to Section 3.4) shall have the right, at the sole discretion of Xyphos to: (a) appoint distributors to distribute, market and sell the Licensed Product;

(b) co-promote the Licensed Product with Third Parties; and (c) appoint Third Parties to promote the Licensed Product.

7.4 Booking Sales. Xyphos shall handle all returns, recalls, or withdrawals, order processing, invoicing, collection, distribution, and inventory management with respect to the Licensed Products in the Field in the Territory.

7.5 Licensed Product Trademark. Xyphos shall have the sole right to determine and own the Licensed Product Trademarks to be used with respect to the Exploitation of the Licensed Products in the Territory. [***].

ARTICLE 8
PAYMENTS AND RECORDS

8.1 Upfront Payment. In partial consideration of all rights, titles and interests granted by Poseida to Xyphos hereunder, Xyphos shall pay to Poseida the non-refundable, non-creditable amount of Fifty Million U.S. Dollars ($50,000,000), within [***] after receipt by Xyphos of an invoice from Poseida on or following the Effective Date.

8.2 Reimbursement of Costs . Within [***] after the end of each Fiscal Quarter, Poseida shall provide to Xyphos: (a) reports of Poseida Reimbursable Research Costs which shall specify in reasonable detail the Research Costs incurred by Poseida for each Research Plan and enable Xyphos to compare the Research Costs for such Fiscal Quarter to the budget contained in the applicable Research Plan, and (b) an invoice for the Poseida Reimbursable Research Costs that have arisen during such Fiscal Quarter that are consistent with the budgeted amounts set forth in the applicable Research Plan, *provided* that such budgeted amounts shall not exceed [***] per Research Plan per Fiscal Year, unless otherwise agreed with Xyphos in writing (the "**Annual Cap**"). If Research Costs are applicable to both Research Programs, then such Research Costs will be split equally between each Research Program. Xyphos shall pay Poseida any undisputed invoice within [***] of receipt of invoice. Poseida shall not enter into any commitments with Third Parties to conduct Research Activities if such commitments would be reasonably likely to exceed the Annual Cap. Except as otherwise set out in this Section 8.2, Xyphos shall not reimburse Poseida for Research Costs in excess of [***] of the budgeted amounts set forth in the applicable Research Plan, as amended, unless (a) such costs have been previously approved in writing by Xyphos, or (b) the JSC has approved a material increase in Poseida's activities under a Research Program. If either Party identifies that, in performing Research Activities, costs will be incurred that exceed the budget contained in the applicable Research Plan by more than [***], then such Party shall promptly notify the other Party of such, and the Parties shall discuss in good faith what action to take, which may include amending the applicable Research Plan or the associated budget. [***].

8.3 Milestones.

8.3.1 Development Milestones. Subject to Section 8.4.3 and Section 8.5 (if applicable), on a Licensed Product-by-Licensed Product basis (other than with respect to the Manufacturing Tech Transfer Completion milestone, which shall only be payable once upon the first achievement of such milestone), Xyphos shall make the Development milestone payments to Poseida that are set forth below (each a "**Development Milestone Payment**") upon the first achievement by or on behalf of Xyphos, its Affiliates or Sublicensees of the Development milestone events set forth below (each a "**Development Milestone Event**"). For clarity, each milestone payment set forth below shall be due and payable up to one time only in respect of one Licensed Product for each Research Program and no amounts shall be due for subsequent or repeated achievements of such milestone for the same Licensed Product or other Licensed Products for the same Research Program targeting the same TAA.

Development Milestone Event	**Development Milestone Payment (in U.S. $ millions)**
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]

8.3.2 Commercial Milestones. Subject to Section 8.4.3 and Section 8.5 (if applicable), Xyphos shall make the following commercial milestone payments to Poseida that are set forth below (each a "**Commercial Milestone Payment**") on a TAA-by-TAA basis, upon the first achievement by or on behalf of Xyphos, its Affiliates or Sublicensees of the commercial milestone events set forth below with respect to Net Sales of all Licensed Products targeting such TAA in a given Fiscal Year in the Territory (each a "**Commercial Milestone Event**"). For clarity, each milestone payment set forth below shall be due and payable up to one time only with respect to the achievement of such Commercial Milestone Event with respect to Licensed Products targeting such TAA, and no amounts shall be due for subsequent or repeated achievements of such milestone by the same Licensed Products.

Aggregate annual Net Sales of a Licensed Product in the Territory in a Fiscal Year first exceed the following amount (in U.S. $)	Sales Milestone Payment (in U.S. $ millions)
[***]	[***]
[***]	[***]
[***]	[***]

8.3.3 Notification. Xyphos shall notify Poseida in writing of the achievement of any: (a) Development Milestone Event within [***] upon achievement, and (b) Commercial Milestone Event within [***] upon the end of the Fiscal Year in which such Commercial Milestone Event was achieved.

8.3.4 Invoice and Payment of Milestone Payments. Following Poseida's receipt of notice from Xyphos that Xyphos has achieved a Development Milestone Event or a Commercial Milestone Event, Poseida shall invoice Xyphos for the applicable milestone payment, and Xyphos shall pay such milestone payment within [***] after receipt of such invoice. All such payments shall be non-refundable and non-creditable.

8.4 Royalties.

8.4.1 Royalty Payments. Subject to the terms and conditions of this Agreement, on a Licensed Product-by-Licensed Product basis, during the applicable Royalty Term, Xyphos shall pay to Poseida royalty payments at the royalty rates specified in the following table with respect to the aggregate annual worldwide Net Sales of a Licensed Product in the Field in the Territory in a given Fiscal Year ("**Royalty Payments**").

	Aggregate Annual Worldwide Net Sales of a Licensed Product in a Fiscal Year (in U.S. $)	Royalty Rate
1.	[***]	[***]
2.	[***]	[***]
3.	[***]	[***]

8.4.2 Calculation of Payments and Reports. Following the First Commercial Sale of a Licensed Product, Xyphos shall calculate all amounts payable to Poseida pursuant to Section 8.4.1 at the end of each Fiscal Quarter. Xyphos shall pay to Poseida the Royalty Payments due with respect to a given Fiscal Quarter within [***] after the end of such Fiscal Quarter. Each Royalty Payment due to Poseida shall be accompanied by a statement setting forth: [***].

8.4.3 Royalty Reduction for Other In-License Payments. The Royalty Payments payable under Section 8.4.1 are subject to the following:

(a) [***].

(b) *Lack of Patent Protection*. Subject to Section 8.4.3(d), if in any Fiscal Quarter during the Royalty Term for a given Licensed Product in a particular country in the Territory, [***], then the applicable Royalty Payments payable with respect to such Licensed Product in such country as specified in Section 8.4.1 shall be reduced by [***] of the royalty rate otherwise applicable commencing on such Fiscal Quarter (and for the entirety of such Fiscal Quarter) [***].

(c) [***].

(d) *Cumulative Deductions.* Notwithstanding the foregoing, [***].

8.5 Mode of Payment; Offsets. All payments to either Party under this Agreement shall be made by deposit of U.S. Dollars in the requisite amount to such bank account as the receiving Party may from time to time designate by notice in writing to the paying Party. [***].

8.6 Indirect Taxes. Royalties and other sums payable under this Agreement are exclusive of value added taxes, sales taxes, consumption taxes and other similar taxes (the "**Indirect Taxes**"). If any Indirect Taxes are chargeable in respect of any payments, the paying Party shall pay such Indirect Taxes at the applicable rate in respect of such payments following receipt, where applicable, of an Indirect Taxes invoice in the appropriate form issued by the receiving Party in respect of those payments. The Parties shall issue invoices for all amounts payable under this Agreement consistent with Indirect Tax requirements and irrespective of whether the sums may be netted for settlement purposes. If the Indirect Taxes originally paid or otherwise borne by the paying Party are in whole or in part subsequently determined not to have been chargeable, all reasonably necessary steps will be taken by the receiving Party to receive a refund of these undue Indirect Taxes from the applicable governmental authority or other fiscal authority and any amount of undue Indirect Taxes repaid by such authority to the receiving Party will be transferred to the paying Party within [***] of receipt.

8.7 Withholding Taxes. Where any sum due to be paid to either Party hereunder is subject to any withholding or similar tax, the Parties shall use their Commercially Reasonable Efforts to do all such acts and things and to sign all such documents as will enable them to take advantage of any applicable double taxation agreement or treaty. In the event there is no applicable double taxation agreement or treaty, or if an applicable double taxation agreement or treaty reduces but does not eliminate such withholding or similar tax, the payor shall remit such withholding or similar tax to the appropriate government authority, deduct the amount paid from the amount due to payee and secure and send to payee the best available evidence of the payment of such withholding or similar tax. Except as provided in Section 8.8, any such amounts deducted by the payor in respect of such withholding or similar tax shall be treated as having been paid by the payor for purposes of this Agreement. In the event that a government authority retroactively determines that a payment made by a Party to the other Party pursuant to this Agreement should have been subject to withholding or similar (or to additional withholding or similar) taxes, and such paying Party (the "**Withholding Party**") remits such withholding or similar taxes to the government authority (the "**Withholding Amount**"), the Withholding Party will have the right (a) to offset the Withholding Amount against future payment obligations of the Withholding Party under this Agreement or (b) to invoice the other Party for the Withholding Amount (which shall be payable by the receiving Party within [***] of its receipt of such invoice), or to pursue reimbursement of the Withholding Amount by any other available remedy.

8.8 Withholding Tax Actions. Notwithstanding the foregoing, the Parties acknowledge and agree that if the paying Party (or its Affiliates, successor or assignee) is required to make a payment to the payee subject to deduction or withholding of taxes, as described in Section 8.7, and if the obligation to deduct or withhold taxes arises, or if the amount of such taxes required to be deducted or withheld is increased solely as a result of the assignment or transfer of this Agreement by the paying Party pursuant to Section 14.2, or there is a change, whether by corporate continuance, merger or other means, in the tax residency of the paying Party, or payments arise or are deemed to arise through a branch of the paying Party (each, a "**Withholding Tax Action**"), then notwithstanding anything to the contrary herein, the payment by paying Party (in respect of which such obligation to deduct or withhold taxes is required) shall be increased by

the amount necessary to ensure that the payee receives an amount equal to the same amount that it would have received had the paying Party not taken such Withholding Tax Action.

8.9 Foreign Derived Intangible Income. Each Party shall use Commercially Reasonable Efforts to provide, and to cause its Affiliates, subcontractors, Sublicensees, customers and applicable Third Parties to provide, any information and documentation reasonably requested by the other Party to obtain the benefits of: (a) Section 250 of the Internal Revenue Code of 1986, as amended and the applicable Treasury Regulations thereunder, and (b) any other U.S. tax law that could provide a material tax benefit to such Party.

8.10 Records. Xyphos shall and shall cause its Affiliates and Sublicensees to keep complete and accurate books and records pertaining to Net Sales of Licensed Products, in sufficient detail to calculate all amounts payable hereunder and to verify compliance with its payment obligations under this Agreement. Such books and records shall be retained by Xyphos, its Affiliates and Sublicensees, as applicable, until the later of: (a) [***] after the end of the Fiscal Year to which such books and records pertain, and (b) the expiration of the applicable tax statute of limitations (or any extensions thereof), or for such longer period as may be required by Applicable Law. Poseida shall and shall cause its Affiliates and subcontractors to keep complete and accurate books and records pertaining to its Research Costs and Cost of Goods for Manufacturing Products, in sufficient detail to calculate all amounts payable under this Agreement. Such books and records shall be retained by Poseida, its Affiliates and subcontractors, as applicable, until the later of: (a) [***] after the end of the Fiscal Year to which such books and records pertain, and (b) the expiration of the applicable tax statute of limitations (or any extensions thereof), or for such longer period as may be required by Applicable Law.

8.11 Audit. Subject to the other terms of this Section 8.11, at the request of a Party (the "**Requesting Party**"), the other Party (the "**Audited Party**") shall, and shall cause its Affiliates to, permit an independent auditor designated by the Requesting Party and reasonably acceptable to the Audited Party, at reasonable times and upon reasonable notice, to audit the books and records maintained of the Audited Party and its Affiliates, subcontractors and Sublicensees pursuant to Section 8.10 to ensure the accuracy of all reports and payments made hereunder. Such examinations may not: (a) be conducted for any [***] more than [***] after the end of such [***], (b) be conducted more than [***], or (c) be repeated for any [***], in each case (a) to (c), unless such audit is a result of a request of a Third Party licensor of rights that are sublicensed to Xyphos under this Agreement. The accounting firm shall disclose to the Requesting Party only whether the reports are correct or not, and the specific details concerning any discrepancies. No other information shall be shared. The cost of this audit shall be borne by the Requesting Party, unless the audit reveals a variance of more than [***] from the reported amounts, in which case the Audited Party shall bear the cost of the audit. If such audit concludes that: (x) additional amounts were owed to Poseida under this Agreement, Xyphos shall pay the additional amounts, or (y) excess payments were made by Xyphos, Poseida shall reimburse such excess payments, in either case ((x) or (y)), within [***] after the date on which such audit is completed. Each Party shall treat all information subject to review under this Section 8.11 in accordance with the confidentiality provisions of ARTICLE 10 and the Parties shall cause the auditor to enter into a reasonably acceptable confidentiality agreement with the Audited Party obligating such firm to retain all such financial information in confidence pursuant to such confidentiality agreement. Each Party shall ensure that

it is entitled to exercise rights to audit each Affiliate, subcontractor and Sublicensee for the benefit of the Requesting Party to the same extent as the foregoing.

8.12 No Other Compensation. Each Party hereby agrees that the terms of this Agreement fully define all consideration, compensation and benefits, monetary or otherwise, to be paid, granted or delivered by one Party to the other Party in connection with the transactions contemplated herein. Neither Party previously has paid or entered into any other commitment to pay, whether orally or in writing, any of the other Party's employees, directly or indirectly, any consideration, compensation or benefits, monetary or otherwise, in connection with the transaction contemplated herein.

ARTICLE 9
INTELLECTUAL PROPERTY

9.1 Inventions Generally. Inventorship of inventions conceived or reduced to practice in the course of activities performed under or contemplated by this Agreement shall be determined by application of U.S. patent laws pertaining to inventorship.

9.2 Ownership of Intellectual Property.

9.2.1 Platform Improvements.

(a) [***].

(b) [***].

(c) [***].

(d) [***].

9.2.2 Materials. [***].

9.2.3 Assignment and Cooperation.

(a) Each Party shall cause all Persons who perform activities for such Party under this Agreement to assign (or, if such Party is unable to cause such Person to assign despite such Party's using Commercially Reasonable Efforts, then be under an obligation to assign; and if still unable to cause such Person to agree to such assignment obligation despite such Party's using Commercially Reasonable Efforts to negotiate such assignment obligation, then provide a license thereunder) their rights in any Know-How resulting therefrom to such Party, except where Applicable Law requires otherwise and except in the case of governmental or not-for-profit institutions which have standard policies against such an assignment (in which case a suitable license, or if such Party is unable to obtain such license despite such Party's using Commercially Reasonable Effort, then a right to obtain such a license, shall be obtained).

(b) Each Party shall promptly disclose to the other Party in writing, and shall cause its Affiliates, licensees and sublicensees to so disclose, the discovery, development, making, conception, or reduction to practice of any and all inventions, discoveries, developments, improvements, modifications, enhancements and/or data conceived, developed or generated by or on behalf of such Party (whether solely or jointly) in the performance of its activities under the Research Plans. Each Party will execute and record assignments and other necessary documents consistent with such ownership promptly upon request.

9.2.4 Ownership of Corporate Names. Each Party shall retain all right, title and interest in and to any corporate names, Trademarks and logos owned or otherwise used by such Party or any of its Affiliates.

9.3 Maintenance and Prosecution of Patents.

9.3.1 Joint Other IP; Xyphos Patents.

(a) If it is agreed that Patents Covering any Joint Other IP will be filed, in accordance with Section 9.2.1(d), then, unless otherwise agreed by the Parties, Xyphos shall [***] have the first right (but not the obligation) to prepare, file, prosecute, and maintain all such Patents (the "**Joint Patents**") in the Territory through the use of internal or external counsel. Xyphos shall keep Poseida reasonably informed with regard to the preparation, filing, prosecution, and maintenance of such Joint Patents in the Territory and shall provide Poseida with copies of any proposed filings of such Joint Patents in the Territory as soon as reasonably possible after being prepared and before filing. Poseida shall have a reasonable opportunity, of at least [***], to review and comment upon prosecution and filing decisions and documents relating to the Joint Patents prior to the filing and submission of correspondence with, and any filings to, the Patent authorities in connection with any such Patents in the Territory, and Xyphos shall consider in good faith all reasonable Poseida comments. If Xyphos decides not to prepare, file, prosecute, or maintain a Joint Patent in a country in the Territory, Xyphos shall provide [***] prior written notice to Poseida of such intention, and Poseida shall thereupon have the option, in its sole discretion, to assume the control and direction of the preparation, filing, prosecution, and maintenance of such Joint Patents [***] in such country. In such event, Xyphos shall promptly provide Poseida with the appropriate documents for transfer of responsibility for filing, prosecution and maintenance of such Joint Patents to Poseida or its designee and shall reasonably cooperate with Poseida or its designee as provided under Section 9.3.3. Thereafter, Poseida shall keep Xyphos reasonably

informed with regard to the preparation, filing, prosecution, and maintenance of such Joint Patents and shall provide Xyphos with copies of any proposed Joint Patent filings at least [***] prior to any proposed filing. Xyphos shall have an opportunity to review and comment upon Joint Patent prosecution and filing decisions prior to the submission of filing and correspondences to the patent authorities, and Poseida shall consider the comments provided by Xyphos in good faith.

(b) Xyphos shall [***] have the sole right (but not the obligation) to prepare, file, prosecute, and maintain all Xyphos Patents (other than any Joint Patents), in the Territory through the use of internal or external counsel. [***].

9.3.2 Poseida Patents. Poseida shall [***] have the sole right (but not the obligation) to prepare, file, prosecute, and maintain all of the Poseida Patents (other than Joint Patents) in the Territory through the use of internal or external counsel.

9.3.3 Cooperation. The Parties agree to cooperate fully in the preparation, filing, prosecution, and maintenance of Patents in the Territory to the extent provided for in this Agreement. Each Party's cooperation shall include executing all papers and instruments, or requiring its employees, consultants or contractors to execute such papers and instruments, so as to: (a) effectuate the ownership of intellectual property rights set forth in Section 9.2; (b) enable the other Party to apply for and to prosecute Patent applications in the Territory; and (c) obtain and maintain any Patent extensions, supplementary protection certificates, and the like with respect to the applicable Patents in the Territory, in each case ((a), (b), and (c)) to the extent provided for in this Agreement.

9.3.4 Patent Term Extension and Supplementary Protection Certificate. Xyphos shall have the right to make decisions regarding Patent term extensions, including supplementary protection certificates and any other extensions that are now or become available in the future, wherever applicable, for Xyphos Patents, including Product-Specific Patents and ACCEL Platform Improvement Patents, but excluding Joint Patents. Poseida shall provide reasonable assistance, as requested by and at the sole cost of Xyphos as is required under any Applicable Law to obtain such extension or supplementary protection certificate. The Parties will discuss in good faith the use of any Joint Patents for Patent term extensions, including supplementary protection certificates, and neither Party will make any decision relating thereto without the prior written consent of the other Party.

9.3.5 UPC Opt-Out and Opt-In. Xyphos shall have the first right to make decisions regarding the Opt-Out or Opt-In under the Article 83(4) of the Agreement on a Unified Patent Court between the participating Member States of the European Union (2013/C 175/01), with respect to any Xyphos Patent, including any Product-Specific Patent and ACCEL Platform Improvement Patents, but excluding any Joint Patent, and pay all fees and make all submissions associated with such decisions. Poseida shall assist Xyphos in such submissions [***] including providing all necessary documents and making all necessary

submissions as a Patent owner. The Parties shall agree any decisions regarding such Opt-Out or Opt-In with respect to any Joint Patents, acting in good faith, in writing.

9.3.6 Patent Listings. Xyphos shall have the sole right to make all filings with Regulatory Authorities in the Territory with respect to any Xyphos Patent, including any Product-Specific Patent and ACCEL Platform Improvement Patents, but excluding any Joint Patents, as required or allowed in the Territory.

9.4 Enforcement of Patents.

9.4.1 Product-Specific Patents; Joint Patents.

(a) *Notification*. Each Party shall, promptly after becoming aware, notify the other Party in writing of any alleged or threatened infringement of Product-Specific Patents or Joint Patents. If either Party becomes aware of any: (i) known or suspected infringement or misappropriation by a Third Party of any Product-Specific Patents or Joint Patents in the Field in the Territory, including any submission to a Regulatory Authority of regulatory documentation for a Biosimilar Product referencing a Licensed Product, or (ii) pending or threatened declaratory judgment, opposition, UPC revocation action, *inter partes* review or similar action or proceeding alleging the invalidity, unenforceability, or non-infringement of any Product-Specific Patents or Joint Patents in the Territory, such Party shall promptly notify the other Party and provide the other Party with all information available to it regarding such matter.

(b) *Enforcement Rights*. As between the Parties, Xyphos shall have the: (i) sole right, but not the obligation, to initiate or control any legal proceeding or take other appropriate action against infringement or misappropriation of, or to defend against any challenge to, any Product-Specific Patents, and (ii) first right, but not the obligation, to initiate or control any legal proceeding or take other appropriate action against infringement or misappropriation of, or to defend against any challenge to, any Joint Patents (each, an "**Action**"), in each case (i) and (ii) [***] and Xyphos shall retain control of such Action. If Xyphos prosecutes an Action with respect to any Product-Specific Patents or Joint Patents, Poseida will join such Action if requested by Xyphos [***] *provided* that Xyphos shall retain control of the Action. If Xyphos elects not to prosecute such Action with respect to a Joint Patent, or otherwise fails to initiate and maintain an Action with respect to a Joint Patent, then Poseida may conduct and control an Action [***].

(c) *Cooperation*. The Parties agree to cooperate fully in any Action brought pursuant to Section 9.4.1(b). If either Party brings such Action, then the other Party shall furnish a power of attorney solely for such purpose, join in, or be named as a necessary party to, such Action, as may be requested by the Party bringing such Action or as otherwise required by Applicable Law. If a Party is required to join as a party to such Action, such Party shall waive any objection to such joinder on the grounds of personal jurisdiction, venue, or *forum non conveniens.*

(d) *Settlement*. The Party bringing an Action in accordance with Section 9.4.1(b) shall have the sole right to settle such Action brought pursuant to Section 9.4.1(b); *provided* that such Party shall have no right to settle any Action in a manner that imposes any costs

or liability on, or involves any admission of fault by the other Party, without the express written consent of such other Party, which shall not be unreasonably withheld, conditioned or delayed. Each Party shall execute all documents reasonably required to effectuate such settlement.

(e) *Recovery*. Except as otherwise agreed by the Parties in connection with a cost sharing arrangement, any recovery realized as a result of an Action described in Section 9.4.1(b) (whether by way of settlement or otherwise) shall be first allocated to reimburse the Parties for their costs and expenses in making such recovery (which amounts shall be allocated pro rata if insufficient to cover the totality of such expenses). Any remainder after such reimbursement is made shall be retained by [***].

9.4.2 Poseida Patents; Xyphos Patents.

(a) Poseida shall have the sole right, but not the obligation, to initiate or control any legal proceeding or take other appropriate action against infringement or misappropriation of, or to defend against any challenge to, any Poseida Patents and to compromise or settle such action at its sole discretion.

(b) Xyphos shall have the sole right, but not the obligation, to initiate or control any legal proceeding or take other appropriate action against infringement or misappropriation of, or to defend against any challenge to, any Xyphos Patents (other than any Joint Patents), including any ACCEL Platform Improvement Patents, and to compromise or settle such action at its sole discretion.

9.5 Defense of Infringement Claims Brought by Third Parties. Each Party shall promptly notify the other Party in writing upon becoming aware of any actual or threatened claim that the Exploitation of any Licensed Product infringes or misappropriates the intellectual property rights (including Trademarks) of a Third Party in the Field in the Territory (each, a "**Third Party IP Claim**"). Subject to the remainder of this Section 9.5, after the Effective Date, Xyphos (or its Affiliates) shall have the first right, but not the obligation, to defend and control the defense of any such Third Party IP Claim [***], using counsel of its own choice *provided*, however, that the provisions of Section 9.4 shall govern the right of Xyphos to assert a counterclaim of infringement. Poseida may participate in such Third Party IP Claim with counsel of its choice [***]. Without limiting the foregoing, if Xyphos finds it necessary or desirable to join Poseida as a party to any Third Party IP Claim, Poseida shall [***] execute all papers and perform such acts as shall be reasonably required. If Xyphos elects (in a written communication submitted to Poseida within a reasonable amount of time after notice of the alleged patent infringement) not to defend or control the defense of the Third Party IP Claim, Poseida (or its designee) may conduct and control the defense of such Third Party IP Claim [***]. Each Party shall keep the other Party reasonably informed of all material developments in connection with any such claim, suit, or proceeding. Any recoveries by Xyphos of any sanctions awarded to Xyphos and against a party asserting a claim being defended under this Section 9.5 (but for clarity, not any recoveries for any counter claim for patent infringement pursuant to Section 9.4, which shall be determined in accordance with Section 9.4, as applicable)

shall be applied as follows: such recovery shall be applied first to (a) reimburse Xyphos for its reasonable out-of-pocket costs of defending such Third Party IP Claim, and (b) reimburse Poseida for its reasonable out-of-pocket costs of participating in the defense of such Third Party IP Claim. The balance of any such recoveries shall be retained or provided to Xyphos.

9.6 Invalidity or Unenforceability Defense.

9.6.1 Each Party shall promptly notify the other Party in writing upon becoming aware of any alleged or threatened assertion of invalidity or unenforceability of any Product-Specific Patents or Joint Patents by a Third Party, in each case in the Field, in the Territory. Subject to the remainder of this Section 9.6.1, after the Effective Date: (a) Xyphos (or its Affiliates) shall have the sole right, but not the obligation, to defend and control the defense of the validity and enforceability of the Product-Specific Patents [***], using counsel of its choice, and have the first right, but not the obligation, to defend and control the defense of the validity and enforceability of the Joint Patents [***], using counsel of its choice; (b) Poseida may participate in any such claim, suit, or proceeding with counsel of its choice [***]; *provided* that Xyphos shall retain control of the defense in such claim, suit, or proceeding; (c) and if Xyphos finds it necessary or desirable to join Poseida as a party to any such action, Poseida shall [***] execute all papers and perform such acts as shall be reasonably required. If Xyphos elects (in a written communication submitted to Poseida within a reasonable amount of time after notice of the alleged patent infringement) not to defend or control the defense of any Joint Patents in a claim, then Poseida (or its designee) may conduct and control the defense of any such claim, suit, or proceeding of such Joint Patents [***]. Each Party shall keep the other Party reasonably informed of all material developments in connection with any such claim, suit, or proceeding with respect to a Joint Patent. Each Party shall obtain the written consent of the other Party prior to settling or compromising such defense with respect to a Joint Patent, such consent not to be unreasonably withheld, conditioned or delayed.

9.6.2 Each Party shall promptly notify the other Party in writing upon becoming aware of any alleged or threatened assertion of invalidity or unenforceability of any of the Poseida Patents by a Third Party, in each case in the Field, in the Territory. Subject to the remainder of this Section 9.6.2, after the Effective Date, Poseida (or its Affiliates) shall have the sole right, but not the obligation, to defend and control the defense of the validity and enforceability of the Poseida Patents (other than any Joint Patents) [***], using counsel of its choice; Xyphos shall have no right to participate in any such claim, suit, or proceeding except as requested by Poseida.

9.6.3 Each Party shall promptly notify the other Party in writing upon becoming aware of any alleged or threatened assertion of invalidity or unenforceability of any Xyphos Patent (other than any Product-Specific Patents or Joint Patents) by a Third Party, in each case in the Field, in the Territory. Subject to the remainder of this Section 9.6.3, after the Effective Date, Xyphos (or its Affiliates) shall have the sole right, but not the obligation, to defend and control the defense of the validity and enforceability of such Xyphos Patents [***], using counsel of its choice; Poseida shall have no right to participate in any such claim, suit, or proceeding except as requested by Xyphos.

9.7 Licensed Product Trademarks. [***]. All costs and expenses of registering, prosecuting, maintaining and enforcing the Licensed Product Trademarks shall be

[***]. [***] shall provide all assistance and documents [***] in support of its prosecution, registration, maintenance and enforcement of the Licensed Product Trademarks.

ARTICLE 10
CONFIDENTIALITY AND NON-DISCLOSURE

10.1 Confidentiality Obligations. At all times during the Term and for a period of [***] following termination or expiration of this Agreement, each Party shall, and shall cause its Affiliates, and such Party's and its Affiliates' officers, directors, employees and agents to, keep confidential and not publish or otherwise disclose to a Third Party and not use, directly or indirectly, for any purpose, any Confidential Information furnished or otherwise made known to it, directly or indirectly, by the other Party in connection with this Agreement, except to the extent such disclosure or use is expressly permitted by the terms of this Agreement. In addition, any information disclosed by one Party to the other Party that is deemed "Confidential Information" of such disclosing Party under the Confidentiality Agreement shall be Confidential Information and subject to this ARTICLE 10. [***].

10.2 Exceptions. Notwithstanding the foregoing, the confidentiality and non-use obligations under Section 10.1 with respect to any Confidential Information shall not apply to any information that the receiving Party can prove by competent evidence:

10.2.1 is or becomes, through no act or failure to act on the part of the receiving Party in breach of this Agreement, generally known or available;

10.2.2 was in the receiving Party's possession prior to disclosure by the disclosing Party, as evidenced by its written records, without any obligation of confidentiality with respect to such information;

10.2.3 is subsequently received by the receiving Party from a Third Party without restriction and without breach of any agreement between such Third Party and the disclosing Party; or

10.2.4 has been independently developed by or for the receiving Party without reference to or use or disclosure of the disclosing Party's Confidential Information, as evidenced by such Party's internal records documenting such independent development.

10.3 Permitted Disclosures. The receiving Party may disclose Confidential Information of the other Party as expressly authorized by this Agreement, or if and to the extent such disclosure is necessary in the following instances:

10.3.1 enforcing the receiving Party's rights under this Agreement and performing the receiving Party's obligations under this Agreement;

10.3.2 complying with Applicable Laws, a valid order of a court of competent jurisdiction, or applicable Listing Rules;

10.3.3 prosecuting or defending litigation as permitted by this Agreement;

10.3.4 in INDs, Drug Approval applications and other applications for Regulatory Approval in accordance with the terms of this Agreement; provided, however, that reasonable measures shall be taken to assure confidential treatment of such information to the extent practicable and consistent with Applicable Law;

10.3.5 to a patent authority for purposes of obtaining, defending or enforcing a Patent in accordance with the terms of this Agreement; provided, however, that (i) Xyphos has the right to file and obtain Patents disclosing the Product-Specific Know-How, (ii) for a disclosure by Xyphos of any Poseida Confidential Information relating to Manufacturing, Xyphos will first notify Poseida of the proposed disclosure, including by providing a copy of the proposed disclosure no less than [***] before submission and will, if requested by Poseida in writing, delay making such submission by up to [***] in order to allow Poseida time to file a Patent covering such Confidential Information if it wishes to do so, and if Poseida has not provided any comments or otherwise exercised its rights as described in this section within [***] of receiving a copy of such proposed disclosure, Xyphos shall be free to submit such disclosure, and (iii) in all other circumstances reasonable measures shall be taken to assure confidential treatment of such information, to the extent such protection is available;

10.3.6 to its or its Affiliates' directors, independent accountants or financial advisors for the sole purpose of enabling such directors, attorneys, independent accountants or financial advisors to provide advice to the receiving Party and are either under professional codes of conduct giving rise to expectations of confidentiality and non-use or under written agreements of confidentiality and non-use, in each case, at least as restrictive as those set forth in this Agreement;

10.3.7 made, where Xyphos is the receiving Party, to Sublicensees or Xyphos Subcontractors, or, where Poseida is the receiving Party, to subcontractors appointed in accordance with Section 3.5.2, in each case to the extent necessary for the performance of subcontracted or sublicensed activities in accordance with the terms of this Agreement; provided that such Sublicensee or subcontractor shall be subject to obligations of confidentiality and non-use at least as restrictive as those set forth in this Agreement;

10.3.8 made, where Poseida is the receiving Party, to a potential or actual acquirer; provided that Poseida may only disclose the terms of this Agreement; and provided further that: [***] such acquirer shall be subject to obligations of confidentiality and non-use at least as restrictive as those set forth in this Agreement; or

10.3.9 made, where Poseida is the receiving Party, to any counterparty to [***].

10.4 Use of Name. Except as expressly provided herein, neither Party nor its Affiliates shall mention or otherwise use the name, logo, or Trademark of the other Party or any of its Affiliates (or any abbreviation or adaptation thereof) in any publication, press release, marketing and promotional material, or other form of publicity without the prior written approval of such other Party in each instance. The restrictions imposed by this Section 10.4 shall not prohibit either Party from making any disclosure identifying the other Party that, in the opinion of the disclosing Party's counsel, is required by Applicable Law.

10.5 Public Announcements. The Parties have agreed upon the content of a press release, which shall be issued promptly after the Effective Date substantially in the form attached as Schedule 10.5 . Neither Party shall issue any other public announcement, press release, or other public disclosure regarding this Agreement or its subject matter without the other Party's prior written consent, except for any such disclosure that is, in the opinion of the disclosing Party's counsel, required by Applicable Law or the rules of a stock exchange on which the securities of the disclosing Party are listed. If a public disclosure or announcement has been previously approved by a Party, then any subsequent disclosure or announcement containing substantially similar information shall not be required.

10.6 Publications. [***].

10.7 Notification of Breach. Each Party shall notify the other promptly after becoming aware of any disclosure of the other Party's Confidential Information in violation of this ARTICLE 10, or any other breach of this ARTICLE 10.

10.8 Return of Confidential Information.

10.8.1 Upon the effective date of the termination of this Agreement for any reason, either Party may request in writing, and the other Party shall either, with respect to Confidential Information to which the other Party does not retain rights under the surviving provisions of this Agreement: (a) promptly destroy all copies of such Confidential Information in the possession of the other Party and confirm such destruction in writing to the requesting Party; or (b) promptly deliver to the requesting Party, at the other Party's expense, all copies of such Confidential Information in the possession of the other Party; *provided, however,* the other Party shall be

permitted to retain one copy of such Confidential Information for the sole purpose of performing any continuing obligations hereunder or for archival purposes. Notwithstanding the foregoing, such other Party also shall be permitted to retain such additional copies of or any computer records or files containing such Confidential Information that have been created solely by such Party's automatic archiving and backup procedures, to the extent created and retained in a manner consistent with such other Party's standard archiving and back-up procedures, but not for any other use or purpose. Each Party hereby agrees that the other Party and its Affiliates may retain any of such Party's Confidential Information recorded in notebooks including but not limited to electronic laboratory notebook storage systems and the other Party and its Affiliates shall have no obligation to destroy or return any such recorded data.

10.8.2 Unless otherwise agreed by the Parties in writing, upon the effective date of the termination of this Agreement, Poseida shall, at the option of Xyphos, promptly: (a) return all Xyphos Materials to Xyphos, or (b) destroy such Xyphos Materials and deliver to Xyphos a written certification of such destruction.

10.9 Survival. All Confidential Information shall continue to be subject to the terms of this Agreement for the applicable periods set forth in this ARTICLE 10 regardless of the termination or expiration of this Agreement.

ARTICLE 11
REPRESENTATIONS AND WARRANTIES

11.1 Mutual Representations and Warranties. Poseida and Xyphos each represents and warrants to the other, as of the Effective Date, as follows:

11.1.1 Organization. It is duly organized, validly existing, and in good standing under the laws of the jurisdiction of its organization, and has all requisite power and authority, corporate or otherwise, to execute, deliver, and perform this Agreement.

11.1.2 Authorization. The execution and delivery of this Agreement and the performance by it of the transactions contemplated hereby have been duly authorized by all necessary corporate action, and do not violate: (a) such Party's charter documents, bylaws, or other organizational documents, (b) in any material respect, any agreement, instrument, or contractual obligation to which such Party is bound, (c) any requirement of any Applicable Law, or (d) any order, writ, judgment, injunction, decree, determination, or award of any court or governmental agency presently in effect applicable to such Party.

11.1.3 Binding Agreement. This Agreement is a legal, valid, and binding obligation of such Party enforceable against it in accordance with its terms and conditions, subject to the effects of bankruptcy, insolvency, or other laws of general application affecting the enforcement of creditor rights, judicial principles affecting the availability of specific performance, and general principles of equity (whether enforceability is considered a proceeding at law or equity).

11.1.4 No Inconsistent Obligation. Neither Party is under any obligation, contractual or otherwise, to any Person that conflicts with or is inconsistent in any material respect

with the terms of this Agreement, or that would impede the diligent and complete fulfillment of its obligations hereunder.

11.2 Additional Representations and Warranties of Poseida. Except as set forth on Schedule 11.2, Poseida further represents and warrants to Xyphos, as of the Effective Date, as follows:

11.2.1 Schedule 11.2.1 sets forth a complete and accurate list of all Patents included in the Poseida Patents on the Effective Date, stating: (a) which Poseida Patents are owned by Poseida or any of its Affiliates (the "**Owned Patents**") and (b) which Poseida Patents are in-licensed by Poseida or any of its Affiliates (the "**In-Licensed Patents**" and together with the Owned Patents, the "**Existing Patents**"), and with respect to any such In-Licensed Patents, a reference to [***].

11.2.2 There are no claims, judgments, or settlements against, or amounts with respect to any such claims, judgments or settlements, owed by Poseida or any of its Affiliates relating to the Poseida Technology. No claim or litigation has been brought or threatened in writing or any other form by any Person against Poseida or its Affiliates alleging that: (a) the Existing Patents are invalid or unenforceable or (b) the disclosing, copying, making, using, assigning, or licensing of the Existing Patents, or the Poseida Know-How violate, infringe, misappropriate or otherwise conflict or interfere with any intellectual property or proprietary right of any Person. To the actual knowledge of Poseida, the Existing Patents are enforceable and not invalid. To the actual knowledge of Poseida, the Exploitation of Products as contemplated herein, does not violate, infringe, misappropriate or otherwise conflict or interfere with, any Patent or other intellectual property or proprietary right of any Third Party. To the actual knowledge of Poseida, no Person is infringing or threatening to infringe or misappropriating or threatening to misappropriate the Poseida Patents or the Poseida Know-How.

11.2.3 Poseida is the sole and exclusive owner of the entire right, title and interest in the Owned Patents free of any encumbrance, lien, or claim of ownership by any Third Party.

11.2.4 Poseida has the sole and exclusive rights to practice the In-Licensed Patents.

11.2.5 The Existing Patents represent all Patents within Poseida's or its Affiliates' ownership or Control that are necessary or reasonably useful (or, with respect to Patent applications, would be necessary or reasonably useful if such Patent applications were to issue as Patents) for the Exploitation of Product.

11.2.6 [***].

11.2.7 Neither Poseida nor any of its Affiliates has previously entered into any agreement, whether written or oral, with respect to the assignment, transfer, license, conveyance or encumbrance of, or otherwise assigned, transferred, licensed, conveyed or encumbered its right, title, or interest in or to the Poseida Technology (including by granting any covenant not to sue with respect thereto) that would conflict with, interfere with or otherwise be inconsistent with Xyphos' rights hereunder.

11.2.8 Copies of all material adverse information with respect to the safety and efficacy of the Allo-T Cells known to Poseida, have been provided or made available to Xyphos prior to the Effective Date.

11.2.9 Neither Poseida nor any of its Affiliates has granted any Third Party rights to Develop or Commercialize any pharmaceutical product targeting any Reserved TAA, and Poseida has not licensed, authorized, appointed, or otherwise enabled any Third Party to directly or indirectly, Research, Develop, Commercialize or otherwise Exploit any Competing Product in any country or other jurisdiction in the Territory.

11.2.10 Poseida and its Affiliates have generated, prepared, maintained, and retained all Regulatory Documentation that is required to be maintained or retained pursuant to and in material compliance with GLP and GCP and Applicable Law with respect to the Allo-T Platform and/or Allo-T Cells. Poseida has made available to Xyphos all material Regulatory Documentation in Poseida's Control relating to the Allo-T Cell and all such Regulatory Documentation is true, complete, and correct in all material respects.

11.2.11 Neither Poseida nor any of its Affiliates has any knowledge of any scientific or technical facts or circumstances that would materially and adversely affect the scientific or therapeutic potential of the Poseida Technology and Allo-T Cell that has not been disclosed to Xyphos as of the Effective Date.

11.2.12 Each Person who has or has had any rights in or to any Owned Patents or any Poseida Know-How, has assigned and has executed an agreement assigning its entire right, title, and interest in and to such Owned Patents and Poseida Know-How to Poseida. No current officer, employee, agent, or consultant of Poseida or any of its Affiliates is in violation of any term of any assignment or other agreement regarding the protection of Owned Patents or Poseida Know-How.

11.2.13 All rights in all inventions and discoveries, made, developed, or conceived by any employee or independent contractor of Poseida or any of its Affiliates during the course of their employment (or other retention) by Poseida or such Affiliate, and relating to or included in Poseida Know-How or that are the subject of one or more Owned Patents have been or will be assigned in writing to Poseida or such Affiliate.

11.2.14 Neither Poseida nor any of its Affiliates, nor any of its or their respective officers, employees, or agents has made an untrue statement of material fact or fraudulent statement to the FDA or any other Regulatory Authority with respect to the Development of the

Allo-T Cells, failed to disclose a material fact required to be disclosed to the FDA or any other Regulatory Authority with respect to the Development of the Allo-T Cells, or committed an act, made a statement, or failed to make a statement with respect to the Development of Allo-T Cells that could reasonably be expected to provide a basis for the FDA to invoke its policy respecting "Fraud, Untrue Statements of Material Facts, Bribery, and Illegal Gratuities", set forth in 56 Fed. Reg. 46191 (September 10, 1991) and any amendments thereto or any analogous laws or policies in the Territory.

11.2.15 Poseida and its Affiliates have conducted, and to Poseida's knowledge their respective contractors and consultants have conducted, all Development of the Allo-T Cells that they have conducted prior to the Effective Date in material compliance with Applicable Law. Poseida has conducted, and to Poseida's knowledge its contractors and consultants have conducted, any and all clinical studies related to the Allo-T cells in material compliance with GCP and Applicable Law.

11.2.16 The inventions claimed or covered by the Owned Patents: (a) were not conceived, discovered, developed, or otherwise made in connection with any research activities funded, in whole or in part, by the federal government of the United States or any agency thereof, and (b) are not a "subject invention" as that term is described in 35 U.S.C. Section 201(f).

11.2.17 The Exploitation of the Allo-T Cell that is the subject of the Research Programs, and which is Manufactured using the Manufacturing process transferred by Poseida pursuant to this Agreement, will not infringe any Patent licensed under [***].

11.3 Debarment. Each Party covenants that if, during the Term, it or its Affiliates become aware that any employee or agent performing any of its obligations hereunder becomes a Debarred Individual, Excluded Individual or a Convicted Individual, or is added to the FDA's Disqualified/Restricted List, such Party shall cease, and shall ensure that its Affiliates and sublicensees cease, employing or using the services of such Person in connection with activities relating to any Product. For purposes of this provision, the following definitions shall apply:

11.3.1 A "**Debarred Individual**" is an individual or entity who has been debarred by the FDA pursuant to 21 U.S.C. §335a(a) or 21 U.S.C. §335a(b) from providing services in any capacity to a Person that has an approved or pending drug or biological product application.

11.3.2 An "**Excluded Individual**" is: (a) an individual or entity, as applicable, who has been excluded, debarred, suspended or is otherwise ineligible to participate in federal health care programs such as Medicare or Medicaid by the Office of the Inspector General (OIG/HHS) of the U.S. Department of Health and Human Services (as that term is defined by 42 U.S.C. 1320a - 7(f)), or (b) an individual or entity, as applicable, who has been excluded, debarred, suspended or is otherwise ineligible to participate in federal procurement and non-procurement programs, including those produced by the U.S. General Services Administration (GSA).

11.3.3 A "**Convicted Individual**" or "**Convicted Entity**" is an individual or entity, as applicable, who has been convicted of a criminal offense that falls within the ambit of

21 U.S.C. §335a (a) or 42 U.S.C. §1320a - 7(a), but has not yet been excluded, debarred, suspended or otherwise declared ineligible.

11.3.4 "**FDA's Disqualified/Restricted List**" is the list of clinical investigators restricted from receiving investigational drugs, biologics, or devices because the FDA has determined that such investigators have repeatedly or deliberately failed to comply with regulatory requirements for studies or have submitted false information to the study sponsor or the FDA.

11.4 Anti-Corruption. Each Party will, and will ensure that its Affiliates and their respective directors, officers, employees, agents or other persons or entities acting on its behalf will, conduct their activities under this Agreement in compliance with the US Foreign Corrupt Practices Act of 1977, as amended, the UK Bribery Act 2010 and any other applicable anti corruption laws, rules or regulations, including ensuring that it has in place adequate procedures to ensure such compliance (collectively, "**Anti-Corruption Laws**"). Without limiting the foregoing, each Party shall ensure that neither it, nor any of the foregoing Persons, shall offer, pay, promise, solicit or receive, directly or indirectly, any remuneration, benefit or advantage to or from any physician or other health care practitioner, governmental or political official, political party, candidate for public office, hospital, medical insurance company or similar provider organization, customer or other person in order to induce or encourage approval, referrals, purchase, or reimbursement or to obtain any other improper business advantage in violation of any Anti-Corruption Laws.

11.5 Additional Covenants by Poseida.

11.5.1 [***].

11.5.2 [***].

11.5.3 [***].

11.6 DISCLAIMER. EXCEPT FOR THE EXPRESS WARRANTIES SET FORTH IN THIS AGREEMENT, NEITHER PARTY MAKES ANY REPRESENTATIONS OR GRANTS ANY WARRANTIES, EXPRESS OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, BY STATUTE OR OTHERWISE, AND EACH PARTY SPECIFICALLY DISCLAIMS ANY OTHER WARRANTIES, WHETHER WRITTEN OR ORAL, OR EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF QUALITY, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR USE OR PURPOSE. EACH PARTY HEREBY DISCLAIMS ANY REPRESENTATION OR WARRANTY THAT THE RESEARCH, DEVELOPMENT, MANUFACTURE OR COMMERCIALIZATION OF THE LICENSED PRODUCTS PURSUANT TO THIS AGREEMENT WILL BE SUCCESSFUL.

ARTICLE 12
INDEMNITY

12.1 Indemnification by Xyphos. Xyphos shall indemnify Poseida, its Affiliates and its and their respective directors, officers, employees, and agents ("**Poseida Indemnitees**"), and defend and save each of them harmless, from and against any and all Losses in connection with any and all suits, investigations, claims, or demands of Third Parties (collectively, "**Claims**") incurred by or rendered against the Poseida Indemnitees arising from or occurring as a result of: [***].

12.2 Indemnification by Poseida. Poseida shall indemnify Xyphos, its Affiliates and its and their respective directors, officers, employees, and agents (the "**Xyphos Indemnitees**"), and defend and save each of them harmless, from and against any and all Losses in connection

with any (a) and all Claims incurred by or rendered against Xyphos Indemnitees arising from or occurring as a result of: [***].

12.3 Notice of Claim. All indemnification claims in respect of a Party, its Affiliates, or their respective directors, officers, employees and agents shall be made solely by such Party to this Agreement (the "**Indemnified Party**"). The Indemnified Party shall give the indemnifying Party prompt written notice (an "**Indemnification Claim Notice**") of any Losses or discovery of fact upon which such Indemnified Party intends to base a request for indemnification under this ARTICLE 12, *provided* that any delay or failure by the Indemnified Party to give such notice shall not relieve the indemnifying Party of its indemnification obligations under this Agreement, except and only to the extent that the indemnifying Party is actually prejudiced as a result of such failure to give notice. Each Indemnification Claim Notice must contain a description of the Claim and the nature and amount of such Losses (to the extent that the nature and amount of such Losses are known at such time). The Indemnified Party shall furnish promptly to the indemnifying Party copies of all papers and official documents received in respect of any Losses and Claims.

12.4 Control of Defense.

12.4.1 In General. At its option and sole expense, the indemnifying Party may assume the control of the defense of any Claim by giving written notice to the Indemnified Party within [***] after the indemnifying Party's receipt of an Indemnification Claim Notice, *provided* that the indemnifying Party has agreed to be fully responsible for all Losses relating to such Claims to the extent provided in Section 12.1 or Section 12.2, as applicable. Upon assuming the defense of a Claim, the indemnifying Party shall have sole power to control the defense and, subject to Section 12.4.3, settlement of such Claim and sole power to appoint and control the retention of lead counsel for the defense of such Claim. If the indemnifying Party assumes the defense of a Claim, the Indemnified Party shall immediately deliver to the indemnifying Party all original notices and documents (including court papers) received by the Indemnified Party in connection with the Claim. Should the indemnifying Party assume the defense of a Claim, except as provided in Section 12.4.2, the indemnifying Party shall not be liable to the Indemnified Party for any legal expenses subsequently incurred by such Indemnified Party in connection with the

analysis, defense or settlement of the Claim unless the incurring of those expenses were specifically requested in writing by the indemnifying Party.

12.4.2 Right to Participate in or Control Defense. Without limiting Section 12.4.1, any Indemnified Party shall be entitled to participate in, but subject to Section 12.4.1, not control, the defense of such Claim and to employ counsel of its choice for such purpose; *provided, however,* that such participation shall be at the Indemnified Party's own expense unless: (a) the employment and control thereof has been specifically authorized by the indemnifying Party in writing, (b) the indemnifying Party has failed to assume the defense and employ counsel in accordance with Section 12.4.1 (in which case the Indemnified Party shall control the defense), or (c) the interests of the Indemnified Party and the indemnifying Party with respect to such Claim are sufficiently adverse to prohibit the representation by the same counsel of both Parties under Applicable Law, ethical rules or equitable principles.

12.4.3 Settlement. With respect to any Losses relating solely to the payment of money damages in connection with a Claim and that do not result in the Indemnified Party's becoming subject to injunctive or other relief or otherwise adversely affecting the business of the Indemnified Party in any manner, and as to which the indemnifying Party shall have acknowledged in writing the obligation to indemnify the Indemnified Party hereunder, the indemnifying Party shall have the sole right to consent to the entry of any judgment, enter into any settlement or otherwise dispose of such Loss, on such terms as the indemnifying Party, in its sole discretion, shall deem appropriate. With respect to all other Losses in connection with Claims, where the indemnifying Party has assumed the defense of the Claim in accordance with Section 12.4.1, the indemnifying Party shall have authority to consent to the entry of any judgment, make any admissions that would adversely affect the Indemnified Party, enter into any settlement or otherwise dispose of such Loss, unless such compromise or settlement involves: (a) any admission of legal wrongdoing by the Indemnified Party, (b) any payment by the Indemnified Party that is not indemnified under this Agreement, or (c) the imposition of any equitable relief against the Indemnified Party (in which case, (a) through (c), the prior written consent of the Indemnified Party shall be required). If the indemnifying Party does not assume and conduct the defense of a Claim as provided in Section 12.4.1, the Indemnified Party may defend against such Claim in accordance with Section 12.4.2; *provided* that the Indemnified Party shall not settle any Claim without the prior written consent of the indemnifying Party, not to be unreasonably withheld, conditioned or delayed.

12.4.4 Cooperation. Regardless of whether the indemnifying Party chooses to defend or prosecute any Claim, the Indemnified Party shall, and shall cause each indemnitee to, cooperate in the defense or prosecution thereof and shall furnish such records, information and testimony, provide such witnesses and attend such conferences, discovery proceedings, hearings, trials and appeals as may be reasonably requested in connection therewith. Such cooperation shall include access during normal business hours afforded to the indemnifying Party to, and reasonable retention by the Indemnified Party of, records and information that are reasonably relevant to such Claim, and making Indemnified Parties and other employees and agents available on a mutually convenient basis to provide additional information and explanation of any material provided hereunder, and the indemnifying Party shall reimburse the Indemnified Party for all its reasonable out-of-pocket expenses in connection therewith.

12.4.5 Expenses. Except as provided above, the costs and expenses, including fees and disbursements of counsel, incurred by the Indemnified Party in connection with any Claim shall be reimbursed [***] by the indemnifying Party, without prejudice to the indemnifying Party's right to contest the Indemnified Party's right to indemnification and subject to refund if the indemnifying Party is ultimately held not to be obligated to indemnify the Indemnified Party.

12.4.6 Insurance. During the Term, each Party shall maintain, at its expense, commercial general liability insurance in commercially reasonable amounts and with appropriate coverage, including product liability, personal injury, bodily injury, and property damage, for its indemnification obligations under this Agreement. Each Party shall provide a certificate of insurance (or evidence of self-insurance) evidencing such coverage to the other Party upon request. Notwithstanding the foregoing, Xyphos may meet its obligations under this Section 12.4.6. with respect to such risks by self-insurance and/or through its captive insurance program. For clarity, such insurance will not limit either Party's obligations or liability (including with respect to its indemnification obligations) hereunder.

12.4.7 Subrogation. All rights an Indemnified Party may have against any Third Party who asserts a Claim that is paid by the indemnifying Party under this ARTICLE 12 shall be subrogated to the indemnifying Party.

12.5 Limitation of Liability. TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, NEITHER PARTY SHALL BE LIABLE TO THE OTHER PARTY OR ANY OTHER PERSON FOR ANY INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, PUNITIVE, CONSEQUENTIAL, OR ENHANCED DAMAGES, INCLUDING LOSS OF ACTUAL OR ANTICIPATED PROFITS OR BUSINESS INTERRUPTION, HOWEVER CAUSED (REGARDLESS OF HOW THESE ARE CLASSIFIED AS DAMAGES), WHETHER ARISING OUT OF BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE OR STRICT LIABILITY), STATUTE OR OTHERWISE (INCLUDING WHETHER SUCH DAMAGE WAS FORESEEABLE AND WHETHER EITHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE). [***].

ARTICLE 13
TERM AND TERMINATION

13.1 Term.

13.1.1 Term. This Agreement shall commence on the Effective Date and, unless earlier terminated in accordance herewith, shall expire on a country-by-country and Licensed Product-by-Licensed Product basis upon the date of expiration of the Royalty Term for such Licensed Product and country (such period, the "**Term**").

13.1.2 Effect of Expiration of the Term. Following the expiration of the Term with respect to a given Licensed Product and country, the license grant in Section 3.1.1(b) for such Licensed Product and country shall automatically become non-exclusive, fully paid-up, perpetual, irrevocable and royalty-free with the right to grant sublicenses through multiple tiers.

13.2 Termination for Breach.

13.2.1 Material Breach. Subject to the other terms of this Agreement, either Party (the "**Non-Breaching Party**") may terminate this Agreement in its entirety or with respect to one or more countries or jurisdictions in the Territory for the material breach of the other Party (the "**Breaching Party**") of this Agreement; *provided* that the Breaching Party has not cured such breach within ninety (90) days after the date of receipt of written notice to the Breaching Party (the "**Cure Period**"), which notice shall describe such breach in reasonable detail and shall state the Non-Breaching Party's intention to terminate this Agreement in its entirety or with respect to one or more countries or jurisdictions in the Territory pursuant to this Section 13.2.1. For clarity, but subject to Section 13.2.2, the Cure Period for any allegation made in good faith as to a material breach under this Agreement will run from the date that written notice was first provided to the Breaching Party by the Non-Breaching Party. Any such termination of this Agreement under this Section 13.2.1 shall become effective at the end of the Cure Period. [***].

13.2.2 Disagreement as to Termination Right for Material Breach**.** Any right to terminate under Section 13.2.1 shall be stayed and the Cure Period tolled in the event that, during any Cure Period, the Party alleged to have been in material breach shall have initiated dispute resolution in accordance with Section 14.5 with respect to the alleged breach, which stay and tolling shall continue until such Dispute has been resolved in accordance with Section 14.5.

13.3 Other Termination Rights.

13.3.1 Termination for Bankruptcy, Insolvency or Similar Event. If a Party: (a) files in any court or agency pursuant to any statute or regulation of any state or country, a petition in bankruptcy or insolvency or for receivership or similar proceeding; (b) is served with an involuntary petition in bankruptcy or insolvency against it, filed in any court or agency pursuant to any statute or regulation of any state or country, and consents to the involuntary bankruptcy or such petition is not dismissed within ninety (90) days after the filing thereof; (c) makes an assignment for the benefit of creditors of substantially all of its assets; (d) appoints or suffers appointment of a receiver or trustee over substantially all of its property; (e) proposes a written agreement of composition, arrangement, readjustment or extension of its debts; (f) files for or is subject to an institution of liquidation or dissolution proceedings; (g) admits in writing its inability to meet its obligations as they fall due in the general course; or (h) becomes subject to a warrant of attachment, execution, or distraint or similar process against substantially all of its property, then, in each case ((a) through (h)), the other Party may terminate this Agreement, effective immediately upon written notice to the other Party. All rights and licenses granted under or

pursuant to this Agreement, including all rights and licenses to use improvements or enhancements developed during the Term, are intended to be, and shall otherwise be deemed to be, for purposes of Section 365(n) of the United States Bankruptcy Code (the "**Bankruptcy Code**") or any analogous provisions in any other country or jurisdiction, licenses of rights to "intellectual property" as defined under Section 101(35A) of the Bankruptcy Code. The Parties agree that the licensee of such intellectual property right under this Agreement shall retain and may fully exercise all of its rights and elections under the Bankruptcy Code, including Section 365(n) of the Bankruptcy Code, or any analogous provisions in any other country or jurisdiction. All of the rights granted to either Party under this Agreement shall be deemed to exist immediately before the occurrence of any bankruptcy case in which the other Party is the debtor. If a bankruptcy proceeding is commenced by or against either Party under the Bankruptcy Code or any analogous provisions in any other country or jurisdiction, the non-debtor Party shall be entitled to a complete duplicate of (or complete access to, as appropriate) any intellectual property rights and all embodiments of such intellectual property rights, which, if not already in the non-debtor Party's possession, shall be delivered to the non-debtor Party within five (5) Business Days of such request; *provided* that the debtor Party is excused from its obligation to deliver the intellectual property rights to the extent the debtor Party continues to perform all of its obligations under this Agreement and this Agreement has not been rejected pursuant to the Bankruptcy Code or any analogous provision in any other country or jurisdiction.

13.3.2 Additional Termination by Xyphos. Xyphos may terminate this Agreement in its entirety, or on a country-by-country basis or on a Research Program-by-Research Program or Licensed Product-by-Licensed Product basis, for any or no reason, upon [***] prior written notice to Poseida. For the avoidance of doubt, any such termination of any particular country, Research Program or Licensed Product pursuant to this Section 13.3.2 shall not terminate this Agreement in respect of any other country or other Research Programs or Licensed Products.

13.3.3 Termination for Patent Challenge. If Xyphos or any of its Affiliates or Sublicensees, anywhere in the Territory, institutes, prosecutes or otherwise participates in (or in any way aids any Third Party in instituting, prosecuting or participating in), at law or in equity or before any administrative or regulatory body, including the U.S. Patent and Trademark Office, any claim, demand, action or cause of action for declaratory relief, damages or any other remedy or for an enjoinment, injunction or any other equitable remedy, including any interference, re examination, opposition or any similar proceeding, alleging that [***].

13.3.4 Rights in Lieu of Termination. If Xyphos has the right to terminate this Agreement pursuant to Section 13.2.1 due to Poseida's material breach that is not cured prior to the expiration of the applicable Cure Period, Xyphos may elect, in its sole discretion, in lieu of exercising such termination right for this Agreement to continue in full force and effect subject to this Section 13.3.3, and, upon written notice from Xyphos to Poseida: [***].

13.3.5 Automatic Termination if Licensed Product is not Designated. If a Research Product is not designated as a Licensed Product within [***] after the expiration of the Research Term, or at a later date as the Parties mutually agree in writing, then the Research Plan and this Agreement shall terminate with respect to such Research Product and the applicable Research Program and each Party shall, and shall procure that its Affiliates and any designated Third Parties, cease to use any Know-How of the other Party transferred in relation to such Research Product including under ARTICLE 6 and destroy or return all tangible embodiments (including copies of lab notes, research reports such as synthesis, pre-formulation, physico chemical property and analytical method) thereof.

13.4 Effects of Termination in Entirety. In the event of termination of this Agreement in its entirety, then notwithstanding anything contained in this Agreement to the contrary, upon the effective date of such termination:

13.4.1 [***];

13.4.2 each Party shall return or destroy all Confidential Information of the other Party with respect to the terminated Research Product or terminated Licensed Product being Researched, Developed, Manufactured or Commercialized under this Agreement as required by ARTICLE 10, subject to any rights to retain copies thereof set forth in Section 10.8;

13.4.3 each Party shall destroy or return all materials, including any co-mingled materials, where such materials have been created, generated or modified using the materials of the other Party, including any Allo-T Cells modified to include any Xyphos materials;

13.4.4 Poseida shall submit a final invoice for all Research Costs incurred up to the effective date of termination that would otherwise be reimbursable under Section 8.2 and all non-cancelable commitments not yet incurred that have been budgeted and approved in a Research Plan and which would otherwise fall within Research Costs. Xyphos shall pay all such amounts within [***] of receipt of such invoice.

13.4.5 Xyphos shall wind down at its cost all Clinical Trials being conducted by or on behalf of Xyphos, its Affiliates or Sublicensees as of the effective date of termination; and

13.4.6 Other than in connection with a termination by Xyphos pursuant to Section 13.2.1 or Section 13.3.1, at the written request of Poseida promptly after the effective date of termination of this Agreement but no later than [***] following the effective date of termination, the Parties shall negotiate for a period not to exceed [***] the terms of an agreement under which Xyphos would: (a) grant to Poseida an exclusive or non-exclusive royalty-bearing license to the Product-Specific IP, and (b) transfer and assign, to Poseida or its designee the Regulatory Documentation for the Licensed Products. Xyphos shall have no obligation to negotiate such an agreement if Poseida fails to provide written notice of its request for such negotiation within [***] following the effective date of termination of this Agreement.

13.4.7 except for the amounts incurred prior to the effective date of termination, Xyphos shall have no further payment obligations with respect to the Licensed Product after the effective date of termination.

13.5 Effects of Termination of Partial Territory. If this Agreement is terminated with respect to one or more countries in the Territory (but not in the case of any termination of this Agreement in its entirety), then: [***].

13.6 Effects of Termination of one Research Program or Licensed Product. If this Agreement is terminated with respect to one Research Program (but not the other Research Program) or one or more (but not all) Licensed Products pursuant to Section 13.3.2, then all rights and licenses granted by either Party hereunder with respect to such terminated Research Program or Licensed Product(s), as the case may be, shall immediately terminate and be of no further force and effect, Competing Product shall not longer include or apply to the TAA that the applicable Research Program or Licensed Product, as applicable, was targeted at, and the Parties shall not conduct any further Exploitation of the applicable terminated Research Product(s) or Licensed Product(s) in the Territory; *provided* that [***], the Parties shall agree to a reasonable wind-down plan with respect to a terminated Research Program or terminated Licensed Product that complies with the ethical and legal obligations of Xyphos.

13.7 Remedies. Except as otherwise expressly provided herein, termination of this Agreement in accordance with the provisions hereof shall not limit remedies that may otherwise be available in law or equity.

13.8 Accrued Rights; Surviving Obligations. Termination or expiration of this Agreement for any reason shall be without prejudice to any rights that shall have accrued to the benefit of a Party prior to such termination or expiration, including any payment obligations of Xyphos arising prior to termination or expiration. Such termination or expiration shall not relieve a Party from obligations that are expressly indicated to survive the termination or expiration of this Agreement. Without limiting the foregoing, ARTICLE 1 (to the extent used in the other surviving provisions), Sections 8.5 through 8.12, Sections 8.3 and 8.4 for up to 12 months after termination but solely if and for so long as Xyphos continues to Commercialize Licensed Product in accordance with Section 13.4.1, Section 9.1, Section 9.2 and Section 9.7 (excluding the final sentence), ARTICLE 10 (other than Sections 10.5 and 10.6), Section 11.6, ARTICLE 12, Section 13.4, Section 13.7, this Section 13.8, and ARTICLE 14 of this Agreement shall survive the termination or expiration of this Agreement for any reason.

ARTICLE 14
MISCELLANEOUS

14.1 Force Majeure. Neither Party shall be held liable or responsible to the other Party or be deemed to have defaulted under or breached this Agreement for failure or delay in fulfilling or performing any term of this Agreement (other than an obligation to make payments) when such failure or delay is caused by or results from events beyond the reasonable control of the non performing Party, including fires, pandemics, floods, earthquakes, hurricanes, embargoes, shortages, epidemics, quarantines, war, acts of war (whether war be declared or not), terrorist acts, insurrections, riots, civil commotion, strikes, lockouts, or other labor disturbances (whether involving the workforce of the non-performing Party or of any other Person), acts of God or acts, omissions or delays in acting by any governmental authority (except to the extent such delay results from the breach by the non-performing Party or any of its Affiliates of any term or condition of this Agreement) ("**Force Majeure**"). The non-performing Party shall notify the other Party of such Force Majeure within [***] after such occurrence by giving written notice to the other Party stating the nature of the event, its anticipated duration, and any action being taken to avoid or minimize its effect. The suspension of performance shall be of no greater scope and no longer duration than is necessary and the non-performing Party shall use Commercially Reasonable Efforts to remedy its inability to perform.

14.2 Assignment. Without the prior written consent of the other Party, neither Party shall sell, transfer, assign, delegate, pledge, or otherwise dispose of, whether voluntarily, involuntarily, by operation of law or otherwise, this Agreement or any of its rights or duties hereunder (collectively an "**Assignment**"); *provided* that either Party may make such an Assignment without the other Party's consent to its Affiliate or to a successor, whether in a merger, sale of stock, sale of assets or any other transaction, of the business to which this Agreement relates. With respect to an Assignment to an Affiliate, the assigning Party shall remain responsible for the performance by such Affiliate of the rights and obligations hereunder. Any attempted Assignment in violation of this Section 14.2 shall be void and of no effect. All valid Assignments of any rights and obligations of the Parties hereunder shall be binding upon and inure to the benefit of and be enforceable by and against the successors and permitted assigns of Xyphos or Poseida, as the case may be. The permitted assignee or transferee shall assume all obligations of its assignor or transferor under this Agreement. Without limiting the foregoing, the grant of rights set forth in this Agreement shall be binding upon any successor or permitted assignee of Poseida, and the

obligations of Xyphos, including the payment obligations, shall run in favor of any such successor or permitted assignee of Poseida's benefits under this Agreement.

14.3 Severability. If any provision of this Agreement is held to be illegal, invalid, or unenforceable under any present or future law, and if the rights or obligations of either Party under this Agreement will not be materially and adversely affected thereby: (a) such provision shall be fully severable, (b) this Agreement shall be construed and enforced as if such illegal, invalid, or unenforceable provision had never comprised a part hereof, (c) the remaining provisions of this Agreement shall remain in full force and effect and shall not be affected by the illegal, invalid, or unenforceable provision or by its severance herefrom, and (d) in lieu of such illegal, invalid, or unenforceable provision, there shall be added automatically as a part of this Agreement a legal, valid and enforceable provision as similar in terms to such illegal, invalid, or unenforceable provision as may be possible and reasonably acceptable to the Parties. To the fullest extent permitted by Applicable Law, each Party hereby waives any provision of law that would render any provision hereof illegal, invalid, or unenforceable in any respect.

14.4 Governing Law. This Agreement, and all Disputes shall be governed by and construed in accordance with the substantive laws of the State of New York, without regard to any conflict of laws principles thereof.

14.5 Dispute Resolution.

14.5.1 The Parties agree to use [***] to resolve any and all disputes, controversies or claims arising out of, related to, or in connection with this Agreement, including either Party's rights or obligations hereunder or any questions regarding the formation, existence, applicability, validity, enforceability, performance, interpretation, breach or termination hereof (each, a "**Dispute**"). Except as provided in Section 2.1.5, if, after [***] following receipt of notice by one Party from the other Party of a Dispute (the "**Initial Dispute Resolution Period**"), the Parties have been unable to resolve the Dispute, then the Parties' Executive Officers shall review the facts of the Dispute and seek to resolve the Dispute by means of direct discussions. If the Executive Officers cannot reach agreement within [***] after the end of the Initial Dispute Resolution Period with respect to any Dispute that is not an Excluded Claim, such Dispute shall be resolved in accordance with Section 14.5.2.

14.5.2 If the Parties do not resolve a Dispute following the procedure set forth in Section 14.5.1, then either Party shall have the right to submit such Dispute (other than an Excluded Claim) for resolution by binding and confidential arbitration administered by the American Arbitration Association ("**AAA**") pursuant to its Commercial Arbitration Rules ("**AAA Rules**"), in effect at the time of arbitration (except as they may be modified herein). Any dispute concerning the propriety of the commencement of arbitration or the scope or applicability of the agreement to arbitrate shall be determined by the arbitrators. The arbitration shall be conducted by an arbitral tribunal of [***] neutral, impartial and independent arbitrators; *provided* further that: (a) no such arbitrator shall be a current or former employee or director, or current stockholder, of either Party, any of their respective Affiliates or any Sublicensee; and (b) each arbitrator shall have experience and familiarity with commercial licensing practices in the pharmaceutical and biotechnology industries. An arbitrator shall be deemed to meet these qualifications unless a party objects within [***] after the arbitrator is selected. The seat, or legal place, of arbitration

shall be New York City, New York. Each Party shall select [***] arbitrator. The [***] Party-selected arbitrators shall select the [***] arbitrator within [***] of the [***] arbitrator's appointment. If a Party fails to select its arbitrator within [***] after the commencement of arbitration, or if the Party-selected arbitrators cannot agree on the [***] within such [***] period, then such arbitrator shall be appointed by the AAA in accordance with its rules. The arbitration shall be conducted, and all documents submitted to the arbitrators shall be, in English. Each Party shall bear its own costs and attorneys' fees for the arbitration, and the Parties shall equally share the fees, costs, and expenses of the arbitrators and the arbitration proceedings, including costs and expenses of translators for the arbitration proceedings, unless the arbitrators otherwise determine and in such case the arbitral award will so provide. The arbitrators shall have the power to grant any remedy or relief that they deem appropriate, whether provisional or final, including but not limited to conservatory relief and injunctive relief. The arbitral tribunal shall, in rendering an award, apply the substantive law of the State of New York, U.S., without giving effect to any conflicts of law provisions thereof that might otherwise refer construction or interpretation of this Agreement to the substantive law of another jurisdiction, and without giving effect to any of its rules or laws relating to arbitration. The Parties acknowledge that this Agreement evidences a transaction involving interstate commerce. Notwithstanding the preceding sentence and Section 14.4 with respect to the applicable substantive law, the agreement to arbitrate and any arbitration conducted hereunder shall be governed by the Federal Arbitration Act, 9 U.S.C. § 1 *et. seq*. The award rendered by the arbitral tribunal shall include a written statement describing the essential findings and conclusions upon which the award is based, including the calculation of any damages awarded, and shall be final, binding and non-appealable (subject only to the Parties' right to request correction of any errors in computation, clerical or typographical errors, or other errors of a similar nature, and the arbitral tribunal's right to make any such correction on its own initiative, in each case, in accordance with the AAA Rules). The Parties undertake to carry out such award without delay. Judgment on the award may be entered in any court of competent jurisdiction. Except to the extent necessary to confirm, enforce or challenge an award, or as may be required by Applicable Law or applicable Listing Rules, neither Party nor any arbitrator may disclose the existence, content, or results of any arbitration hereunder without the prior written consent of both Parties. Notwithstanding anything to the contrary in the foregoing, in no event shall an arbitration be initiated after the date when commencement of a legal or equitable proceeding based on the Dispute would be barred by the applicable New York statute of limitations.

14.5.3 Notwithstanding anything herein to the contrary, each Party shall have the right to seek to institute judicial proceedings against the other Party, or anyone acting by, through, or under such other Party, in order to seek interim or provisional relief, including a preliminary injunction or other similar interim equitable relief, concerning a Dispute in any court of competent jurisdiction before or after the initiation of an arbitration as set forth in Section 14.5.2 if necessary to protect the interests of such Party, and any such request shall not be deemed incompatible with, or a waiver of, this agreement to arbitrate. This Section shall be specifically enforceable. Such interim equitable remedies shall not be deemed to be the exclusive remedies for a breach of this Agreement but shall be in addition to all other remedies available at law or in equity. The Parties further agree not to raise as a defense or objection to the request or granting of such relief that any breach of this Agreement is or would be compensable by an award of money damages. No remedy referred to in this Agreement is intended to be exclusive, but each shall be cumulative and in

addition to any other remedy referred to in this Agreement or otherwise available at law or in equity.

14.5.4 As used in this Section 14.5, the term "**Excluded Claim**" shall mean a Dispute, controversy, or claim that concerns: (a) the validity, enforceability, scope, construction or infringement of a Patent, Trademark, or copyright; or (b) any antitrust, anti-monopoly, or competition law or regulation, whether or not statutory. Any action concerning Excluded Claims may be brought in any court of competent jurisdiction (or, in the case of any Excluded Claim described in the preceding clause (a) with respect to a Patent or Trademark, in the applicable patent and/or trademark office in the jurisdiction in which such Patent or Trademark is filed, issued or registered or otherwise exists), and no Excluded Claim shall be subject to arbitration pursuant to Section 14.5.2.

14.5.5 Each Party shall continue to perform its obligations under this Agreement pending final resolution of any Dispute unless to do so would be impossible or impracticable under the circumstances.

14.6 Notices.

14.6.1 Notice Requirements. Any notice, request, demand, waiver, consent, approval, or other communication permitted or required under this Agreement shall be in writing, shall refer specifically to this Agreement and shall be deemed given only if: (a) delivered by hand, (b) by internationally recognized overnight delivery service that maintains records of delivery, addressed to the Parties at their respective addresses specified in Section 14.6.2 or (c) to such other address as the Party to whom notice is to be given may have provided to the other Party in accordance with this Section 14.6.1. Such notice shall be deemed to have been given as of the date delivered by hand or on the [***] (at the place of delivery) after deposit with an internationally recognized overnight delivery service. This Section 14.6.1 is not intended to govern the day-to-day business communications necessary between the Parties in performing their obligations under the terms of this Agreement.

14.6.2 Address for Notice.

If to Xyphos, to:
Xyphos Biosciences, Inc.
480 Forbes Boulevard
South San Francisco, CA 94080
Attn: Chief Scientific Officer

With a copy to (which will not constitute notice):
Astellas US LLC
2375 Waterview Drive
Northbrook, IL 60062
Attn: General Counsel

If to Poseida, to:
Poseida Therapeutics, Inc.
9390 Towne Centre Drive, Suite 200

San Diego, CA 92121
Attention: CEO and General Counsel

With copies to (which will not constitute notice):

[***]

14.7 Entire Agreement; Amendments. This Agreement and Schedules attached hereto, together with any Exhibits, sets forth and constitutes the entire agreement and understanding between the Parties with respect to the subject matter hereof and all prior agreements, understandings, promises, and representations, whether written or oral, with respect thereto, including the Confidentiality Agreement, are superseded hereby. No amendment, modification, release, or discharge shall be binding upon the Parties unless in writing and duly executed by authorized representatives of both Parties.

14.8 Waiver and Non-Exclusion of Remedies. Any term or condition of this Agreement may be waived at any time by the Party that is entitled to the benefit thereof, but no such waiver shall be effective unless set forth in a written instrument duly executed by or on behalf of the Party waiving such term or condition. The waiver by either Party hereto of any right hereunder or of the failure to perform or of a breach by the other Party shall not be deemed a waiver of any other right hereunder or of any other breach or failure by such other Party whether of a similar nature or otherwise. The rights and remedies provided herein are cumulative and do not exclude any other right or remedy provided by Applicable Law or otherwise available except as expressly set forth herein.

14.9 English Language. This Agreement shall be written and executed in, and all reports and other communications under or in connection with this Agreement shall be in, the English language. Any translation into any other language shall not be an official version thereof, and in the event of any conflict in interpretation between the English version and such translation, the English version shall control.

14.10 No Benefit to Third Parties. Except as provided in ARTICLE 12, covenants and agreements set forth in this Agreement are for the sole benefit of the Parties hereto and their successors and permitted assigns, and they shall not be construed as conferring any rights on any other Persons.

14.11 Further Assurance. Each Party shall duly execute and deliver, or cause to be duly executed and delivered, such further instruments and do and cause to be done such further acts and things, including the filing of such assignments, agreements, documents, and instruments, as may be necessary or as the other Party may reasonably request in connection with this Agreement or to carry out more effectively the provisions and purposes hereof, or to better assure and confirm unto such other Party its rights and remedies under this Agreement.

14.12 Relationship of the Parties. It is expressly agreed that Poseida, on the one hand, and Xyphos, on the other hand, shall be independent contractors and that the relationship between the two Parties shall not constitute a partnership, joint venture, or agency, including for all tax purposes. Neither Poseida, on the one hand, nor Xyphos, on the other hand, shall have the authority to make any statements, representations, or commitments of any kind, or to take any action, which

shall be binding on the other, without the prior written consent of the other Party to do so. All Persons employed by a Party shall be employees of such Party and not of the other Party and all costs and obligations incurred by reason of any such employment shall be for the account and expense of such Party.

14.13 Performance by Affiliates. Poseida acknowledges and accepts that Xyphos may exercise its rights and perform its obligations (including granting or continuing licenses and other rights) under this Agreement either directly or through one or more of its Affiliates and Sublicensees. The Affiliates and Sublicensees of Xyphos will have the benefit of all rights (including all licenses and other rights) of Xyphos under this Agreement. Accordingly, in this Agreement "Xyphos" will be interpreted to mean "Xyphos or its Affiliates or Sublicensees" where necessary to give each Affiliate or Sublicensee of Xyphos the benefit of the rights provided to Xyphos in this Agreement and the ability to perform its obligations (including granting or continuing licenses and other rights) under this Agreement; *provided, however,* that in any event Xyphos will remain responsible for the acts and omissions, including financial liabilities, of its Affiliates and Sublicensees.

14.14 Counterparts; Electronic Execution. This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. This Agreement may be executed by facsimile or electronically transmitted signatures and such signatures shall be deemed to bind each Party hereto as if they were original signatures.

14.15 References. Unless otherwise specified: (a) references in this Agreement to any Article, Section, Schedule or Exhibit shall mean references to such Article, Section, Schedule or Exhibit of this Agreement, (b) references in any Section to any clause are references to such clause of such Section, (c) references to any agreement, instrument, or other document in this Agreement refer to such agreement, instrument, or other document as originally executed or, if subsequently amended, replaced, or supplemented from time to time, as so amended, replaced, or supplemented and in effect at the relevant time of reference thereto, and (d) references in this Agreement to any specific law, rule or regulation, or article, section or other division thereof, will be deemed to include the then-current amendments thereto or any replacement or successor law, rule, or regulation thereof.

14.16 Construction. Except where the context otherwise requires, wherever used, the singular shall include the plural, the plural the singular, the use of any gender shall be applicable to all genders and the word "or" is used in the inclusive sense (and/or). Whenever this Agreement refers to a number of days, unless otherwise specified, such number refers to calendar days. The headings of clauses contained in this Agreement preceding the text of the Sections, subsections, paragraphs and exhibits hereof are for convenience of reference only and in no way define, describe, extend, or limit the scope or intent of this Agreement or the intent of any provision contained in this Agreement. The term "including," "include," or "includes" as used herein shall mean including, without limiting the generality of any description preceding such term. The language of this Agreement shall be deemed to be the language mutually chosen by the Parties and no rule of strict construction shall be applied against either Party hereto. Each Party represents that it has been represented by legal counsel in connection with this Agreement and acknowledges that it has participated in the drafting hereof. In interpreting and applying the terms and provisions of

this Agreement, the Parties agree that no presumption will apply against the Party which drafted such terms and provisions.

{Signature Page Follows}

THIS AGREEMENT IS EXECUTED by the authorized representatives of the Parties as of the Effective Date.

POSEIDA THERAPEUTICS, INC.

By: /s/ Kristin Yarema

Name: Kristin Yarema

Title: President and Chief Executive Officer**XYPHOS BIOSCIENCES, INC**

By: /s/ Gary Starling

Name: Gary Starling

Title: President, Xyphos

Schedule 1.73
Terms of Existing Upstream License Agreements

[***]

Schedule 1.92

IND-Enabling Data Package Contents

[***]

Schedule 4.2.1
Research Plan

[***]

Schedule 4.3.1 Reserved TAAs

[***]

Schedule 4.3.2 TMEs

[***]

Schedule 10.5
Form of Press Release

Press Release

Astellas and Poseida Therapeutics Enter Into Research Collaboration and License Agreement to Develop Novel Allogeneic Cell Therapies in Oncology

- Leverages Poseida's proprietary allogeneic CAR-T platform to develop innovative convertibleCAR® programs targeting solid tumors -

TOKYO and SAN DIEGO, April, [date], 2024 - Astellas Pharma Inc. (TSE: 4503, President and CEO: Naoki Okamura, "Astellas") and Poseida Therapeutics, Inc. (NASDAQ: PSTX, President and CEO: Kristin Yarema, "Poseida") today announced that Xyphos Biosciences, Inc., (a wholly owned subsidiary of Astellas, "Xyphos") and Poseida have entered into a research collaboration and license agreement to develop novel *convertible*CAR® programs by combining the innovative cell therapy platforms from each of the companies.

Poseida is advancing differentiated cell and gene therapies with the capacity to cure certain cancers and rare diseases. In oncology, its pipeline includes allogeneic CAR-T cell therapy product candidates for both solid and liquid tumors that address patient populations with high unmet medical need. Xyphos utilizes a novel and proprietary ACCEL™ technology*' platform that uses its *convertible*CAR® (convertible Chimeric Antigen Receptor)*' in combination with proprietary MicAbodies*' to target tumor cells.

Under the terms of the agreement, the companies plan to combine Poseida's proprietary allogeneic CAR-T platform with Xyphos' ACCEL™ technology to create one Poseida-developed CAR-T construct to form the basis of two *convertible*CAR® product candidates targeting solid tumors. Xyphos will reimburse Poseida for costs incurred as part of the research.

agreement and will be responsible for the development and future commercialization of products generated from the collaboration. Poseida will receive US $50 million upfront plus potential development and sales milestones and contingency payments of up to US $550 million in total. Additionally, Poseida is eligible for up to low double digit tiered royalties as a percentage of net sales.

Kristin Yarema, Ph.D., President and CEO of Poseida
"We are excited to expand our relationship with Astellas, where we share a vision that cutting edge, off the shelf cell therapies can address significant unmet needs of patients with solid tumor malignancies. Today's agreement further reinforces the economic value of Poseida's highly differentiated non-viral technologies and enables development in areas beyond our core pipeline focus. It also highlights Poseida's role as the partner of choice in allogeneic CAR-T."

Adam Pearson, Chief Strategy Officer (CStO) of Astellas
"At Astellas, we have a strong commitment to developing novel treatments for patients with cancer and have positioned Immuno-Oncology as a Primary Focus of our R&D strategy*2. By leveraging our extensive expertise, experience in cancer biology and unique technologies, we are focused on reinvigorating the immune system's ability to discover, disarm and destroy cancers in more patients. By combining the ACCEL™ platform with Poseida's elegant and cutting-edge genetic editing platforms, we believe the collaboration will bring synergies between the two companies' breakthrough research and will ultimately lead to expansion of Astellas' portfolio and to delivery of innovative CAR-T cell therapies to cancer patients."

In August 2023, Astellas and Poseida Therapeutics announced a strategic investment by Astellas to support Poseida's commitment to redefining cancer cell therapy.

***1 ACCEL™ technology and *convertible*CAR®**: ACCEL™ technology is based on a synthetic biology approach that utilizes the binding of an engineered protein ligand to an orthogonal engineered receptor which forms the extracellular domain of a convertible CAR (chimeric antigen receptor). The *convertible*CAR® is targeted to tumor cells with a tumor-associated antigen-specific engineered antibody-like molecule (MicAbody) containing the engineered ligand. For more information, please visit http://www.xyphosinc.com

***2**: Astellas has established a Focus Area Approach for its research and development strategy. For more information, please visit our website at Areas of Interest | Astellas Pharma Inc.

About Xyphos Biosciences, Inc., an Astellas Company
Xyphos Biosciences, Inc., located at South San Francisco, Calif., is a wholly owned subsidiary of Astellas featuring ACCEL™ technology, a CAR (chimeric antigen receptor) technology platform for immune cell therapies. Xyphos Biosciences was launched in 2017, and the Company was acquired by Astellas Pharma in December of 2019. For more information about the company, please visit www.xyphosinc.com.

About Astellas

Astellas Pharma Inc. is a pharmaceutical company conducting business in more than 70 countries around the world. We are promoting the Focus Area Approach that is designed to identify opportunities for the continuous creation of new drugs to address diseases with high unmet medical needs by focusing on Biology and Modality. Furthermore, we are also looking beyond our foundational Rx focus to create Rx+® healthcare solutions that combine our expertise and knowledge with cutting-edge technology in different fields of external partners. Through these efforts, Astellas stands on the forefront of healthcare change to turn innovative science into VALUE for patients. For more information, please visit our website at https://www.astellas.com/en.

About Poseida Therapeutics, Inc.

Poseida Therapeutics is a clinical-stage biopharmaceutical company advancing differentiated cell therapies and genetic medicines with the capacity to cure certain cancers and rare diseases. The Company's pipeline includes investigational allogeneic CAR-T cell therapies for both solid tumors and hematologic cancers as well as investigational in vivo genetic medicines that address patient populations with high unmet medical need. The Company's approach is based on its proprietary genetic editing platforms, including its non-viral piggyBac® DNA Delivery System, Cas-CLOVERTM Site-Specific Gene Editing System, Booster Molecule and nanoparticle gene delivery technologies, as well as in-house GMP cell therapy manufacturing. The Company has formed a global strategic collaboration with Roche to unlock the promise of cell therapies for patients with hematologic malignancies. Learn more at www.poseida.com and connect with Poseida on X and LinkedIn.

Cautionary Notes (Astellas)

In this press release, statements made with respect to current plans, estimates, strategies and beliefs and other statements that are not historical facts are forward-looking statements about the future performance of Astellas. These statements are based on management's current assumptions and beliefs in light of the information currently available to it and involve known and unknown risks and uncertainties. A number of factors could cause actual results to differ materially from those discussed in the forward-looking statements. Such factors include, but are not limited to: (i) changes in general economic conditions and in laws and regulations, relating to pharmaceutical markets, (ii) currency exchange rate fluctuations, (iii) delays in new product launches, (iv) the inability of Astellas to market existing and new products effectively, (v) the inability of Astellas to continue to effectively research and develop products accepted by customers in highly competitive markets, and (vi) infringements of Astellas' intellectual property rights by third parties.

Information about pharmaceutical products (including products currently in development) which is included in this press release is not intended to constitute an advertisement or medical advice.

Forward-Looking Statements (Poseida)

Statements contained in this press release regarding matters that are not historical facts are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Such forward-looking statements include statements regarding, among other things, the upfront payment and other potential fees, reimbursements, milestone, and royalty payments and research development activities under the collaboration agreement, the potential benefits of Poseida's relationship with Astellas and Xyphos; the quotes from Dr. Yarema and Mr. Pearson; the potential capabilities and benefits of Poseida's technology platforms and product candidates; and Poseida's plans and strategy with respect to developing its technologies and product candidates. Because such statements are subject to risks and uncertainties, actual results may differ materially from those expressed or implied by such forward-looking statements. These forward-looking statements are based upon Poseida's current expectations and involve assumptions that may never materialize or may prove to be incorrect. Actual results could differ materially from those anticipated in such forward-looking statements as a result of various risks and uncertainties, which include, without limitation, the fact that the collaboration agreement may be terminated early; the fact that Poseida will have limited control over the efforts and resources that Astellas or Xyphos devote to advancing development programs under the collaboration agreement, and Poseida may not receive the potential fees and payments under the collaboration agreement or fully realize the benefits of the collaboration; risks and uncertainties associated with development and regulatory approval of novel product candidates in the biopharmaceutical industry; and the other risks described in Poseida's filings with the Securities and Exchange Commission. All forward-looking statements contained in this press release speak only as of the date on which they were made. Poseida undertakes no obligation to update such statements to reflect events that occur or circumstances that exist after the date on which they were made, except as required by law.

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Contacts for inquiries or additional information:

Astellas Pharma Inc.
Corporate Communications
+81-3-3244-3201

Poseida Investor and Media Relations:
Alex Chapman
Senior Vice President, IR & Corporate Communications
IR@poseida.com
Sarah Thailing
Senior Director, IR & Corporate Communications
PR@poseida.com

Schedule 11.2
Poseida Disclosures

[***]

Schedule 11.2.1
Poseida Patents

[***]

Exhibit 31.1

CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Kristin Yarema, Ph.D., certify that:

1. I have reviewed this Form 10-Q of Poseida Therapeutics, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 5, 2024

By: /s/ Kristin Yarema
Kristin Yarema, Ph.D.
Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Johanna M. Mylet, C.P.A., certify that:

1. I have reviewed this Form 10-Q of Poseida Therapeutics, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 5, 2024

By: /s/ Johanna M. Mylet
Johanna M. Mylet, C.P.A.
Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, (the "Exchange Act") and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), Kristin Yarema, Ph.D., Chief Executive Officer of Poseida Therapeutics, Inc. (the "Company") hereby certifies that, to the best of her knowledge:

1. The Company's Quarterly Report on Form 10-Q for the period ended June 30, 2024, to which this Certification is attached as Exhibit 32.1 (the "Periodic Report"), fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and

2. The information contained in the Periodic Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: August 5, 2024

By: /s/ Kristin Yarema
Kristin Yarema, Ph.D.
Chief Executive Officer
(Principal Executive Officer)

Exhibit 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, (the "Exchange Act") and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), Johanna M. Mylet, C.P.A., Chief Financial Officer of Poseida Therapeutics, Inc. (the "Company") hereby certifies that, to the best of her knowledge:

1. The Company's Quarterly Report on Form 10-Q for the period ended June 30, 2024, to which this Certification is attached as Exhibit 32.2 (the "Periodic Report"), fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and

2. The information contained in the Periodic Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: August 5, 2024

By: /s/ Johanna M. Mylet
Johanna M. Mylet, C.P.A.
Chief Financial Officer
(Principal Financial and Accounting Officer)