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

FORM 10-Q

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

For the quarterly period ended September 30, 2020

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 No. 001-37852

PROTAGONIST THERAPEUTICS, INC.

(Exact name of registrant as specified in its charter)

Delaware	**98-0505495**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
7707 Gateway Boulevard, Suite 140 Newark, California 94560-1160	**(510) 474-0170**
(Address, including zip code, of registrant's principal executive offices)	**(Telephone number, including area code, of registrant's principal executive offices)**

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 $0.00001	PTGX	The Nasdaq Stock Market, LLC

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	☒
		Smaller reporting company	☒
Non-accelerated filer	☐	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 of 1934). Yes ☐ No ☒

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date.

As of October 30, 2020, there were 38,256,792 shares of the registrant's Common Stock, par value $0.00001 per share, outstanding.

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PART I. – FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

PROTAGONIST THERAPEUTICS, INC.
Condensed Consolidated Balance Sheets
(Unaudited)
(In thousands, except share and per share data)

	September 30, 2020	December 31, 2019
Assets		
Current assets:		
Cash and cash equivalents	$ 83,625	$ 33,006
Marketable securities	110,349	100,011
Restricted cash - current	10	10
Receivable from collaboration partner and contract asset - related party	2,789	6,755
Research and development tax incentive receivable	535	—
Prepaid expenses and other current assets	6,843	5,529
Total current assets	204,151	145,311
Marketable securities - noncurrent	6,025	—
Property and equipment, net	1,459	1,681
Restricted cash - noncurrent	450	450
Operating lease right-of-use asset	5,235	6,042
Deferred tax asset	—	1,433
Total assets	$ 217,320	$ 154,917
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 2,797	$ 2,790
Payable to collaboration partner - related party	2,077	1,262
Accrued expenses and other payables	15,518	12,360
Deferred revenue - related party - current	16,765	17,738
Operating lease liability - current	1,406	1,256
Total current liabilities	38,563	35,406
Long-term debt, net	—	9,794
Deferred revenue - related party - noncurrent	4,112	23,792
Operating lease liability - noncurrent	4,885	5,961
Other liability - noncurrent	170	—
Total liabilities	47,730	74,953
Commitments and contingencies (Note 10)		
Stockholders' equity:		
Preferred stock, $0.00001 par value, 10,000,000 shares authorized; no shares issued and outstanding	—	—
Common stock, $0.00001 par value, 90,000,000 shares authorized; 37,314,873 and 27,206,447 shares issued and outstanding as of September 30, 2020 and December 31, 2019, respectively	—	—
Additional paid-in capital	434,603	297,846
Accumulated other comprehensive loss	(88)	(221)
Accumulated deficit	(264,925)	(217,661)
Total stockholders' equity	169,590	79,964
Total liabilities and stockholders' equity	$ 217,320	$ 154,917

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

PROTAGONIST THERAPEUTICS, INC.
Condensed Consolidated Statements of Operations
(Unaudited)
(In thousands, except share and per share data)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
License and collaboration revenue - related party	$ 13,114	$ 4,141	$ 22,978	$ (2,488)
Operating expenses:				
Research and development	15,995	17,293	55,020	49,092
General and administrative	4,891	4,015	13,644	11,642
Total operating expenses	20,886	21,308	68,664	60,734
Loss from operations	(7,772)	(17,167)	(45,686)	(63,222)
Interest income	87	762	820	2,134
Interest expense	(19)	—	(471)	—
Loss on early repayment of debt	—	—	(585)	—
Other expense, net	(59)	(106)	(37)	(145)
Loss before income tax benefit (expense)	(7,763)	(16,511)	(45,959)	(61,233)
Income tax benefit (expense)	—	102	(1,305)	1,547
Net loss	$ (7,763)	$ (16,409)	$ (47,264)	$ (59,686)
Net loss per share, basic and diluted	$ (0.21)	$ (0.61)	$ (1.45)	$ (2.36)
Weighted-average shares used to compute net loss per share, basic and diluted	37,386,881	26,956,957	32,647,524	25,315,512

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

PROTAGONIST THERAPEUTICS, INC.
Condensed Consolidated Statements of Comprehensive Loss
(Unaudited)
(In thousands)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Net loss	$ (7,763)	$ (16,409)	$ (47,264)	$ (59,686)
Other comprehensive loss:				
Gain on translation of foreign operations	129	10	143	6
(Loss) gain on marketable securities	(9)	3	(10)	73
Comprehensive loss	$ (7,643)	$ (16,396)	$ (47,131)	$ (59,607)

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

PROTAGONIST THERAPEUTICS, INC.
Condensed Consolidated Statements of Stockholders' Equity
(Unaudited)
(In thousands, except share data)

Three months ended September 30, 2020	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Accumulated Other Comprehensive Gain (Loss)	Accumulated Deficit	Total Stockholders' Equity
Balance at June 30, 2020	36,802,139	$ —	$ 424,855	$ (208)	$ (257,162)	$ 167,485
Issuance of common stock pursuant to public offering, net of issuance costs	—	—	(3)	—	—	(3)
Issuance of common stock pursuant to at-the-market offering, net of issuance costs	333,047	—	6,368	—	—	6,368
Issuance of common stock under equity incentive and employee stock purchase plans	179,687	—	1,495	—	—	1,495
Stock-based compensation expense	—	—	1,888	—	—	1,888
Other comprehensive gain (loss)	—	—	—	120	—	120
Net loss	—	—	—	—	(7,763)	(7,763)
Balance at September 30, 2020	37,314,873	$ —	$ 434,603	$ (88)	$ (264,925)	$ 169,590

Three months ended September 30, 2019	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Accumulated Other Comprehensive Gain (Loss)	Accumulated Deficit	Total Stockholders' Equity
Balance at June 30, 2019	24,967,603	$ —	$ 268,234	$ (167)	$ (183,751)	$ 84,316
Issuance of common stock pursuant to at-the-market offering, net of issuance costs	1,924,957	—	23,949	—	—	23,949
Issuance of common stock under equity incentive and employee stock purchase plans	313,887	—	1,288	—	—	1,288
Stock-based compensation expense	—	—	2,201	—	—	2,201
Other comprehensive gain (loss)	—	—	—	13	—	13
Net loss	—	—	—	—	(16,409)	(16,409)
Balance at September 30, 2019	27,206,447	$ —	$ 295,672	$ (154)	$ (200,160)	$ 95,358

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

PROTAGONIST THERAPEUTICS, INC.
Condensed Consolidated Statements of Stockholders' Equity (continued)
(Unaudited)
(In thousands, except share data)

Nine months ended September 30, 2020	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Accumulated Other Comprehensive Gain (Loss)	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2019	27,217,649	$ —	$ 297,846	$ (221)	$ (217,661)	$ 79,964
Issuance of common stock pursuant to public offering, net of issuance costs	8,050,000	—	105,328	—	—	105,328
Issuance of common stock pursuant to at-the-market offering, net of issuance costs	1,565,840	—	23,011	—	—	23,011
Issuance of common stock under equity incentive and employee stock purchase plans	481,384	—	2,486	—	—	2,486
Stock-based compensation expense	—	—	5,932	—	—	5,932
Other comprehensive gain (loss)	—	—	—	133	—	133
Net loss	—	—	—	—	(47,264)	(47,264)
Balance at September 30, 2020	37,314,873	$ —	$ 434,603	$ (88)	$ (264,925)	$ 169,590

Nine months ended September 30, 2019	Common Stock Shares	Common Stock Amount	Additional Paid-In Capital	Accumulated Other Comprehensive Gain (Loss)	Accumulated Deficit	Total Stockholders' Equity
Balance at December 31, 2018	23,187,219	$ —	$ 253,222	$ (233)	$ (140,474)	$ 112,515
Issuance of common stock pursuant to at-the-market offering, net of issuance costs	2,846,641	—	34,492	—	—	34,492
Issuance of common stock pursuant to exercise of Exchange Warrants	599,997	—	—	—	—	—
Issuance of common stock under equity incentive and employee stock purchase plans	572,590	—	1,765	—	—	1,765
Stock-based compensation expense	—	—	6,193	—	—	6,193
Other comprehensive gain (loss)	—	—	—	79	—	79
Net loss	—	—	—	—	(59,686)	(59,686)
Balance at September 30, 2019	27,206,447	$ —	$ 295,672	$ (154)	$ (200,160)	$ 95,358

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

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

	Nine Months Ended September 30,	
	2020	2019
CASH FLOWS FROM OPERATING ACTIVITIES		
Net loss	$ (47,264)	$ (59,686)
Adjustments to reconcile net loss to net cash used in operating activities:		
Stock-based compensation	5,932	6,193
Change in deferred tax asset	1,404	(1,548)
Operating lease right-of-use asset amortization	1,331	1,347
Loss on early repayment of debt	585	—
Depreciation and amortization	601	501
Amortization of debt issuance costs and accretion of debt discount	22	—
Accretion of discount on marketable securities, net of premium amortization	(155)	(397)
Changes in operating assets and liabilities:		
Research and development tax incentive receivable	(517)	1,237
Receivable from collaboration partner - related party	3,966	2,642
Prepaid expenses and other assets	(1,566)	(1,586)
Accounts payable	32	(4,165)
Payable to collaboration partner - related party	815	(41)
Accrued expenses and other payables	3,130	(781)
Deferred revenue - related party	(20,653)	(1,409)
Operating lease liability	(1,450)	30,455
Other liability	170	—
Net cash used in operating activities	(53,617)	(27,238)
CASH FLOWS FROM INVESTING ACTIVITIES		
Proceeds from maturities of marketable securities	131,383	77,400
Purchase of marketable securities	(147,600)	(117,807)
Purchases of property and equipment	(346)	(749)
Net cash used in investing activities	(16,563)	(41,156)
CASH FLOWS FROM FINANCING ACTIVITIES		
Proceeds from public offering of common stock, net of issuance costs	105,478	—
Proceeds from at-the-market offering, net of issuance costs	23,219	34,492
Proceeds from issuance of common stock upon exercise of stock options and purchases under employee stock purchase plan	2,486	1,765
Issuance costs related to long-term debt	(14)	—
Early repayment of long-term debt	(10,524)	—
Net cash provided by financing activities	120,645	36,257
Effect of exchange rate changes on cash, cash equivalents and restricted cash	154	99
Net increase (decrease) in cash, cash equivalents and restricted cash	50,619	(32,038)
Cash, cash equivalents and restricted cash, beginning of period	33,466	82,693
Cash, cash equivalents and restricted cash, end of period	$ 84,085	$ 50,655
SUPPLEMENTAL DISCLOSURE OF NON-CASH FINANCING AND INVESTING INFORMATION:		
Issuance costs related to at-the-market offering of common stock included in prepaid expenses and other assets at the end of the previous year	$ 191	$ —
Issuance costs related to public offering of common stock included in prepaid expenses and other assets at the end of the previous year	$ 125	$ —
Purchases of property and equipment in accounts payable and accrued liabilities	$ 27	$ 157
Issuance costs related to public offering of common stock included in accrued liabilities and other payables	$ 25	$ —
Issuance costs related to at-the-market offering of common stock included in accrued liabilities and other payables	$ 17	$ —

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

PROTAGONIST THERAPEUTICS, INC.
Notes to Unaudited Condensed Consolidated Financial Statements

Note 1. Organization and Description of Business

Protagonist Therapeutics, Inc. (the "Company") was incorporated in the state of Delaware on August 22, 2006 and is headquartered in Newark, California. The Company is a clinical-stage biopharmaceutical company that utilizes a proprietary technology platform to discover and develop novel peptide-based drugs to transform existing treatment paradigms for patients with significant unmet medical needs. Protagonist Pty Limited ("Protagonist Australia") is a wholly-owned subsidiary of the Company and is located in Brisbane, Queensland, Australia. Protagonist Australia was incorporated in Australia in September 2001. The Company manages its operations as a single operating segment.

Liquidity

The Company has incurred net losses from operations since inception and has an accumulated deficit of $264.9 million as of September 30, 2020. The Company's ultimate success depends on the outcome of its research and development and collaboration activities. The Company expects to incur additional losses in the future and anticipates the need to raise additional capital to continue to execute its long-range business plan. Since the Company's initial public offering in August 2016, it has financed its operations primarily through offerings of common stock, payments received under license and collaboration agreements and proceeds received from long-term debt.

Risks and Uncertainties

The Company is subject to risks and uncertainties as a result of the COVID-19 pandemic. The extent of the impact of the COVID-19 pandemic on the Company's activities is highly uncertain and difficult to predict, as the response to the pandemic is ongoing and information continues to evolve. Capital markets and economies worldwide have been negatively impacted by the COVID-19 pandemic, which has contributed to the current global economic recession. Such economic disruption could have a material adverse effect on the Company's business. Policymakers around the globe have responded with fiscal policy actions to support the healthcare industry and economy as a whole. The magnitude and overall effectiveness of these actions remains uncertain.

The severity of the impact of the COVID-19 pandemic on the Company's activities will depend on a number of factors, including, but not limited to, the duration and severity of the pandemic, including the severity of any additional periods of increases or spikes in the number of cases in the areas the Company and its suppliers operate and areas where the Company's clinical trial sites are located. Accordingly, the extent and severity of the impact on the Company's existing and planned clinical trials and collaboration activities and operations, all of which are uncertain and cannot be predicted. The Company has experienced delays in its existing and planned clinical trials due to the worldwide impacts of the pandemic. The Company's future results of operations and liquidity could be adversely impacted by further delays in existing and planned clinical trials and collaboration activities, continued difficulty in recruiting patients for these clinical trials, supply chain disruptions, the ongoing effect of the impact on its operating activities and employees, and the ongoing impact of any initiatives or programs that the Company may undertake to address financial and operational challenges. As of the date of issuance of these condensed consolidated financial statements, the extent to which the COVID-19 pandemic may materially impact the Company's future financial condition, liquidity or results of operations is uncertain.

Note 2. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with generally accepted accounting principles in the United States of America ("GAAP") and applicable rules and regulations of the SEC regarding interim financial reporting. As permitted under those rules, certain footnotes or other financial information that are normally required by GAAP have been condensed or omitted, and accordingly the condensed consolidated balance sheet as of December 31, 2019 has been derived from the Company's audited

consolidated financial statements at that date but does not include all of the information required by GAAP for complete consolidated financial statements. These unaudited interim condensed consolidated financial statements have been prepared on the same basis as the Company's annual consolidated financial statements and, in the opinion of management, reflect all adjustments (consisting of normal recurring adjustments) that are necessary for a fair presentation of the Company's consolidated financial statements. The results of operations for the three and nine months ended September 30, 2020 are not necessarily indicative of the results to be expected for the year ending September 30, 2020 or for any other interim period or for any other future year.

The accompanying condensed consolidated financial statements and related financial information should be read in conjunction with the audited consolidated financial statements and the related notes thereto for the year ended December 31, 2019 included in the Company's Annual Report on Form 10-K, filed with the SEC on March 10, 2020.

Principles of Consolidation

The accompanying unaudited interim condensed consolidated financial statements include the accounts of the Company and its wholly owned subsidiary. All intercompany transactions and balances have been eliminated upon consolidation.

Use of Estimates

The preparation of the condensed consolidated financial statements in conformity with GAAP requires management to make estimates, assumptions and judgments that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities as of the date of the condensed consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. On an ongoing basis, management evaluates its estimates, including those related to revenue recognition, accruals for research and development activities, stock-based compensation, income taxes, marketable securities and leases. Estimates related to revenue recognition include actual costs incurred versus total estimated costs of the Company's deliverables to determine percentage of completion in addition to the application and estimates of potential revenue constraints in the determination of the transaction price under its license and collaboration agreements. Management bases these estimates on historical and anticipated results, trends, and various other assumptions that the Company believes are reasonable under the circumstances, including assumptions as to forecasted amounts and future events.

Due to the COVID-19 pandemic, there has been uncertainty and disruption in the global economy and financial markets. The Company has taken into consideration any known COVID-19 impacts in its accounting estimates to date and is not aware of any additional specific events or circumstances that would require any additional updates to its estimates or judgments or a revision of the carrying value of its assets or liabilities as of the date of issuance of this Quarterly Report on Form 10-Q. These estimates may change as new events occur and additional information is obtained. Actual results could differ materially from these estimates under different assumptions or conditions.

Concentrations of Credit Risk

Financial instruments that potentially subject the Company to a concentration of credit risk consist of cash, cash equivalents and marketable securities. Substantially all of the Company's cash is held by two financial institutions that management believes are of high credit quality. Such deposits may, at times, exceed federally insured limits. The primary focus of the Company's investment strategy is to preserve capital and to meet liquidity requirements. The Company's cash equivalents and marketable securities are managed by external managers within the guidelines of the Company's investment policy. The Company's investment policy addresses the level of credit exposure by limiting concentration in any one corporate issuer and establishing a minimum allowable credit rating. To manage its credit risk exposure, the Company maintains its portfolio of cash equivalents and marketable securities in fixed income securities denominated and payable in U.S. dollars. Permissible investments of fixed income securities include obligations of the U.S. government and its agencies, money market instruments including commercial paper and negotiable certificates of deposit, and highly rated corporate debt obligations and money market funds. As of the date of issuance of these

condensed consolidated financial statements, the COVID-19 pandemic has not had a material impact on the Company's credit exposure, and the extent to which the COVID-19 pandemic may materially impact the Company's future level of credit exposure is uncertain.

Cash Equivalents

Cash equivalents that are readily convertible to cash are stated at cost, which approximates fair value. The Company considers all highly liquid investments purchased with an original maturity of three months or less to be cash equivalents.

Restricted Cash

Restricted cash consists of cash balances primarily held as security in connection with a letter of credit related to the Company's facility lease entered into in March 2017 and the Company's corporate credit card.

Cash as Reported in Condensed Consolidated Statements of Cash Flows

Cash as reported in the condensed consolidated statements of cash flows includes the aggregate amounts of cash and cash equivalents and the restricted cash as presented on the condensed consolidated balance sheets.

Cash as reported in the condensed consolidated statements of cash flows consists of (in thousands):

	September 30,	
	2020	2019
Cash and cash equivalents	$ 83,625	$ 50,195
Restricted cash - current	10	10
Restricted cash - noncurrent	450	450
Cash balance in consolidated statements of cash flows	$ 84,085	$ 50,655

Marketable Securities

All marketable securities have been classified as "available-for-sale" and are carried at estimated fair value as determined based upon quoted market prices or pricing models for similar securities. Management determines the appropriate classification of its marketable securities at the time of purchase and reevaluates such designation as of each balance sheet date. Short-term marketable securities have maturities greater than three months but no longer than 365 days as of the balance sheet date. Long-term marketable securities have maturities of 365 days or longer as of the balance sheet date. Unrealized gains and losses are excluded from earnings and are reported as a component of comprehensive loss. Realized gains and losses and declines in fair value judged to be other than temporary, if any, on available-for-sale securities are included in interest income. The cost of securities sold is based on the specific-identification method. Interest on marketable securities is included in interest income.

Revenue Recognition

The Company follows Accounting Standards Codification Topic 606, *Revenue from Contracts with Customers* ("ASC 606"). Under ASC 606, the Company recognizes revenue when its customer obtains control of promised goods or services, in an amount that reflects the consideration which the Company expects to receive in exchange for those goods or services. To determine revenue recognition for arrangements that the Company determines are within the scope of ASC 606, the Company performs the following five steps: (i) identify the contract(s) with a customer; (ii) identify the performance obligations in the contract; (iii) determine the transaction price; (iv) allocate the transaction price to the performance obligations in the contract; and (v) recognize revenue when (or as) the Company satisfies a performance obligation. The Company applies the five-step model to contracts when it is probable that the Company will collect the consideration it is entitled to in exchange for the goods or services it transfers to the customer. At contract inception, the Company assesses the goods or services promised within each contract, determines those that are performance obligations, and assesses whether each promised good or service is distinct. The Company then recognizes

as revenue the amount of the transaction price that is allocated to the respective performance obligations when (or as) the performance obligations are satisfied. The Company constrains its estimate of the transaction price up to the amount (the "variable consideration constraint") that a significant reversal of recognized revenue is not probable.

Licenses of intellectual property: If a license to the Company's intellectual property is determined to be distinct from the other performance obligations identified in an arrangement, the Company recognizes revenue from non-refundable, upfront fees allocated to the license when the license is transferred to the customer and the customer is able to use and benefit from the license. For licenses that are bundled with other promises, the Company utilizes judgment to assess the nature of the combined performance obligation to determine whether the combined performance obligation is satisfied over time or at a point in time and, if over time, the appropriate method of measuring proportional performance for purposes of recognizing revenue from non-refundable, upfront fees. The Company evaluates the measure of proportional performance each reporting period and, if necessary, adjusts the measure of performance and related revenue recognition.

Milestone payments: At the inception of each arrangement or amendment that includes development, regulatory or commercial milestone payments, the Company evaluates whether the milestones are considered probable of being reached and estimates the amount to be included in the transaction price. ASC 606 suggests two alternatives to use when estimating the amount of variable consideration: the expected value method and the most likely amount method. Under the expected value method, an entity considers the sum of probability-weighted amounts in a range of possible consideration amounts. Under the most likely amount method, an entity considers the single most likely amount in a range of possible consideration amounts. Whichever method is used, it should be consistently applied throughout the life of the contract; however, it is not necessary for the Company to use the same approach for all contracts. The Company expects to use the most likely amount method for development and regulatory milestone payments. If it is probable that a significant revenue reversal would not occur, the associated milestone value is included in the transaction price. Milestone payments that are not within the control of the Company or the licensee, such as regulatory approvals, are not considered probable of being achieved until those approvals are received. If there is more than one performance obligation, the transaction price is then allocated to each performance obligation on a relative stand-alone selling price basis. The Company recognizes revenue as or when the performance obligations under the contract are satisfied. At the end of each subsequent reporting period, the Company re-evaluates the probability or achievement of each such milestone and any related constraint, and if necessary, adjusts its estimates of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis, which would affect revenues and earnings in the period of adjustment.

Royalties: For arrangements that include sales-based royalties, including milestone payments based on the level of sales, and the license is deemed to be the predominant item to which the royalties relate, the Company recognizes revenue at the later of (i) when the related sales occur, or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied (or partially satisfied).

Upfront payments and fees are recorded as deferred revenue upon receipt or when due and may require deferral of revenue recognition to a future period until the Company performs its obligations under these arrangements. Amounts payable to the Company are recorded as accounts receivable when the Company's right to consideration is unconditional. Amounts payable to the Company and not yet billed to the collaboration partner are recorded as contract assets. The Company does not assess whether a contract has a significant financing component if the expectation at contract inception is such that the period between payment by the customer and the transfer of the promised goods or services to the customer will be one year or less.

Contractual cost sharing payments made to a customer or collaboration partner are accounted for as a reduction to the transaction price if such payments are not related to distinct goods or services received from the customer or collaboration partner.

Contracts may be amended to account for changes in contract specifications and requirements. Contract modifications exist when the amendment either creates new, or changes existing, enforceable rights and obligations. When contract modifications create new performance obligations and the increase in consideration approximates the standalone selling price for goods and services related to such new performance obligations as adjusted for specific

facts and circumstances of the contract, the modification is considered to be a separate contract. If a contract modification is not accounted for as a separate contract, the Company accounts for the promised goods or services not yet transferred at the date of the contract modification (the remaining promised goods or services) prospectively, as if it were a termination of the existing contract and the creation of a new contract, if the remaining goods or services are distinct from the goods or services transferred on or before the date of the contract modification. The Company accounts for a contract modification as if it were a part of the existing contract if the remaining goods or services are not distinct and, therefore, form part of a single performance obligation that is partially satisfied at the date of the contract modification. In such case the effect that the contract modification has on the transaction price, and on the entity's measure of progress toward complete satisfaction of the performance obligation, is recognized as an adjustment to revenue (either as an increase in or a reduction of revenue) at the date of the contract modification (the adjustment to revenue is made on a cumulative catch-up basis).

The period between when the Company transfers control of promised goods or services and when the Company receives payment is expected to be one year or less, and that expectation is consistent with the Company's historical experience. Upfront payment contract liabilities resulting from the Company's license and collaboration agreements do not represent a financing component as the payment is not financing the transfer of goods and services, and the technology underlying the licenses granted reflects research and development expenses already incurred by the Company. As such, the Company does not adjust its revenues for the effects of a significant financing component.

Research and Development Costs

Research and development costs are expensed as incurred, unless there is an alternate future use in other research and development projects or otherwise. Research and development costs include salaries and benefits, stock-based compensation expense, laboratory supplies and facility-related overhead, outside contracted services including clinical trial costs, manufacturing and process development costs for both clinical and pre-clinical materials, research costs, development milestone payments under license and collaboration agreements, and other consulting services.

The Company accrues for estimated costs of research and development activities conducted by third-party service providers, which include the conduct of pre-clinical studies and clinical trials, and contract manufacturing activities. The Company records the estimated costs of research and development activities based upon the estimated services provided but not yet invoiced and includes these costs in accrued expenses and other payables in the condensed consolidated balance sheets and within research and development expense in the condensed consolidated statements of operations. The Company accrues for these costs based on factors such as estimates of the work completed and in accordance with agreements established with its third-party service providers. As actual costs become known, the Company adjusts its accrued liabilities. The Company has not experienced any material differences between accrued liabilities and actual costs incurred. However, the status and timing of actual services performed, number of patients enrolled, the rate of patient enrollment and number of locations of sites activated may vary from the Company's estimates, resulting in adjustments to expense in future periods. Changes in these estimates that result in material changes to the Company's accruals could materially affect the Company's results of operations.

The Company has received orphan drug designation from the U.S. Food and Drug Administration ("FDA") for its clinical asset PTG-300 for the treatment of polycythemia vera and beta-thalassemia and may qualify for a related 25% U.S. Federal income tax credit on qualifying clinical study expenditures.

Research and Development Tax Incentive

The Company is eligible under the AusIndustry research and development tax incentive program to obtain either a refundable cash tax incentive or a taxable credit in the form of a non-cash tax incentive from the Australian Taxation Office ("ATO"). The refundable cash tax incentive is available to the Company on the basis of specific criteria with which the Company must comply. Specifically, the Company must have annual turnover of less than AUD 20.0 million and cannot be controlled by income tax exempt entities. The refundable cash tax incentive is recognized as a reduction to research and development expense when the right to receive has been attained and funds are considered to be collectible. The tax incentive is denominated in Australian dollars and, therefore, the related receivable is remeasured into U.S. dollars as of each reporting date. The Company may alternatively be eligible for a taxable credit

in the form of a non-cash tax incentive in years when the annual turnover exceeds the limit. The Company evaluates its eligibility under tax incentive programs as of each balance sheet date and makes accrual and related adjustments based on the most current and relevant data available.

Net Loss per Share

Basic net loss per share is calculated by dividing the Company's net loss by the weighted average number of shares of common stock and Exchange Warrants outstanding during the period, without consideration of potentially dilutive securities. In accordance with Accounting Standards Codification Topic 260, *Earnings Per Share*, the Exchange Warrants are included in the computation of basic net loss per share because the exercise price is negligible, and they are fully vested and exercisable after the original issuance date. Diluted net loss per share is the same as basic net loss per share for all periods presented since the effect of potentially dilutive securities is anti-dilutive given the net loss of the Company in each period. See Note 11. Stockholder's Equity for additional information regarding the Exchange Warrants.

Recently Adopted Accounting Pronouncements

In August 2018, the FASB issued ASU No. 2018-13, *Fair Value Measurement (Topic 820) – Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement*, which modifies the disclosure requirements on fair value measurements and is intended to improve the effectiveness of disclosures, including the consideration of costs and benefits. The Company adopted this guidance as of January 1, 2020. The adoption of this guidance did not have a material impact on the Company's consolidated financial statements or disclosures.

In November 2018, the FASB issued ASU No. 2018-18, *Collaborative Arrangements (Topic 808): Clarifying the Interaction Between Topic 808 and Topic 606*, which is intended to clarify the circumstances under which certain transactions in collaborative arrangements should be accounted for under the revenue recognition standard. Certain transactions between collaboration arrangement participants should be accounted for as revenue under ASC Topic 606 when the collaborative arrangement participant is a customer in the context of a unit of account. This guidance is effective for fiscal years and interim periods within those years beginning after December 15, 2019. The Company adopted this guidance as of January 1, 2020. The adoption of this guidance did not have a material impact on the Company's consolidated financial statements and disclosures.

Recently Issued Accounting Pronouncements Not Yet Adopted as of September 30, 2020

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments - Credit Losses (Topic 326)*, which is intended to provide financial statement users with more useful information about expected credit losses on financial assets held by a reporting entity at each reporting date. The new standard replaces the existing incurred loss impairment methodology with a methodology that requires consideration of a broader range of reasonable and supportable forward-looking information to estimate all expected credit losses. This guidance was originally effective for fiscal years and interim periods within those years beginning after December 15, 2019, with early adoption permitted for fiscal years and interim periods within those years beginning after December 15, 2018. In November 2019, the FASB issued ASU No. 2019-10, *Financial Instruments – Credit Losses (Topic 326), Derivatives and Hedging (Topic 815), and Leases (Topic 842): Effective Dates*, which amended the mandatory effective date of ASU No. 2016-13 for smaller reporting companies to fiscal years and interim periods beginning after December 15, 2022. The Company is currently evaluating the impact of this new guidance on its consolidated financial statements and disclosures.

In December 2019, the FASB issued ASU No. 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes,* which removes certain exceptions and amends certain requirements in the existing income tax guidance to ease accounting requirements. This guidance is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2020 and must be applied on a retrospective basis. The Company does not expect the adoption of this guidance to have a material impact on its consolidated financial statements and disclosures.

Note 3. License and Collaboration Agreement

Agreement Terms

On May 26, 2017, the Company and Janssen Biotech, Inc., ("Janssen"), one of the Janssen Pharmaceutical Companies of Johnson & Johnson, entered into an exclusive license and collaboration agreement (the "Janssen License and Collaboration Agreement") for the development, manufacture and potential commercialization of PTG-200 worldwide for the treatment of Crohn's disease ("CD") and ulcerative colitis ("UC"). Janssen is a related party to the Company as Johnson & Johnson Innovation - JJDC, Inc., a significant stockholder of the Company, and Janssen are both subsidiaries of Johnson & Johnson. PTG-200 is the Company's orally delivered gut-restricted Interleukin 23 receptor ("IL-23R") antagonist drug candidate currently in development. The Janssen License and Collaboration Agreement became effective on July 13, 2017. Upon the effectiveness of the agreement, the Company received a non-refundable, upfront cash payment of $50.0 million from Janssen.

Under the Janssen License and Collaboration Agreement, the Company granted to Janssen an exclusive worldwide license to develop, manufacture and commercialize PTG-200 and related IL-23R antagonist compounds for all indications, including CD and UC. The Company was responsible, at its own expense, for the conduct of the Phase 1 clinical trial for PTG-200, and Janssen is responsible for the conduct of the Phase 2 clinical trial for PTG-200 in CD, including filing the U.S. Investigational New Drug application ("IND"). Development costs for the Phase 2 clinical trial are shared between the parties on an 80/20 basis, with Janssen assuming the larger share. Janssen submitted an IND for PTG-200 in CD during the second quarter of 2019, which took effect in July 2019. Janssen and the Company initiated a Phase 2 clinical study for PTG-200 in CD in the fourth quarter of 2019.

The Company entered into an amendment (the "First Amendment") to the Janssen License and Collaboration Agreement effective May 7, 2019. The First Amendment builds upon the Company's ongoing development collaboration with Janssen for PTG-200 and, upon the effectiveness of the First Amendment, the Company became eligible to receive a $25.0 million payment from Janssen, which was received during the second quarter of 2019. The First Amendment expanded the scope of the Janssen License and Collaboration Agreement by supporting research efforts towards identifying and developing second-generation IL-23R antagonists ("second-generation compounds").

As part of the services added in the First Amendment, Janssen will pay certain costs and milestones related to advancing pre-clinical candidates from the second-generation research program through Phase 1 studies, including funding of a certain number of full-time equivalent employees ("FTEs") at the Company for a set period of time. The Company will pay 100% of the costs for the Phase 1 studies for the first second-generation compound, and 50% of the costs of the Phase 1 studies for the second and third second-generation compounds; thereafter Janssen will pay 100% of any further Phase 1 development costs. Development costs for the Phase 2 clinical trials for second-generation compounds are shared between the parties on an 80/20 basis, with Janssen assuming the larger share. The Company's Phase 1 and Phase 2 development costs are also limited by overall spending caps. In December 2019, the Company became eligible to receive a $5.0 million payment trigged by the successful nomination of a second-generation development compound, which was received during the first quarter of 2020. The Company will be eligible to receive a $7.5 million milestone payment at the completion of a Phase 1 study for the first second-generation compound.

Prior to the effectiveness of the First Amendment, the Company had been eligible to receive a $25.0 million milestone payment upon Janssen's filing of the IND. This amount had been considered constrained until a time at which the Company would have become eligible to receive the $25.0 million payment from Janssen. Payments to the Company for research and development services are generally billed and collected as services are performed or assets are delivered, including research activities and Phase 1 and Phase 2 development activities. Janssen bills the Company for its 20% share of the Phase 2 development costs as expenses are incurred by Janssen. Milestone payments are received after the related milestones are achieved.

Pursuant to the First Amendment, the Company will be eligible to receive clinical development, regulatory and sales milestones, if and as achieved, and/or payments relating to Janssen's elections to maintain or expand its license rights. The next anticipated such payment is a $50.0 million payment based on Phase 2a clinical trial results, as follows:

- Janssen can elect to advance PTG-200 into Phase 2b following receipt of the top line results of the CD Phase 2a clinical trial for PTG-200 by paying a $50.0 million maintenance fee (the "Amended First Opt-in Election"); or

- Janssen would make a $50.0 million milestone payment following dosing of the third patient in the first Phase 2b clinical trial for CD for a second-generation product.

Janssen can also then elect to receive exclusive, worldwide commercial rights for both PTG-200 and second-generation products following the Phase 2b completion date for PTG-200 or a second-generation product by paying a $50.0 million payment (the "Amended Second Opt-in Election"). The Company will also be eligible for certain additional milestone payments including a potential payment of either $100.0 million upon a Phase 3 CD clinical trial meeting a primary clinical endpoint with respect to PTG-200 or $115.0 million upon a Phase 3 CD clinical trial meeting a primary clinical endpoint with respect to a second-generation compound.

Pursuant to the First Amendment, the Company will be eligible to receive tiered royalties on net product sales at percentages ranging from mid-single digits to ten percent. Under the terms of the First Amendment, the Company is eligible to receive up to $1.0 billion in research, development, regulatory and sales milestones.

The Janssen License and Collaboration Agreement remains in effect until the royalty obligations cease following patent and regulatory expiry, unless terminated earlier. Upon a termination of the Janssen License and Collaboration Agreement, all rights revert back to the Company, and in certain circumstances, if such termination occurs during ongoing clinical trials, Janssen would, if requested, provide certain financial and operational support to the Company for the completion of such trials.

Revenue Recognition

The Company concluded that the amended Janssen License and Collaboration Agreement continued to contain a single performance obligation for the development license; second-generation compound research services; Phase 1 development services for PTG-200 and potential second-generation compounds; the Company's services associated with Phase 2 development for PTG-200 until Phase 2a; the Company's services associated with Phase 2 development for a second-generation product until the dosing of the third patient in Phase 2b; and all other such services that the Company may perform at the request of Janssen to support the development of PTG-200, second-generation research services, or the development of a second-generation compound. The Company concluded that the Amended First Opt-in Election and the Amended Second Opt-in Election options are not considered to be material rights.

The Company determined that the license was not distinct from the added research and development services within the context of the agreement because the added research and development services significantly increase the utility of the intellectual property. The Company also determined that the remaining research and development services are not distinct from the partially delivered combined promise comprised under the agreement prior to the First Amendment of the development license and PTG-200 services, including compound supply and other services. Therefore, the First Amendment is treated as if it were part of the original Janssen License and Collaboration Agreement. The First Amendment was accounted for as if it were an extension of services under the initial Janssen License and Collaboration Agreement by applying a cumulative catch-up adjustment to revenue. As of the effective date of the First Amendment, the Company calculated the adjusted cumulative revenue under the amended Janssen License and Collaboration Agreement by updating the transaction price for the incremental consideration to be received, net of the incremental development cost reimbursement to be paid to Janssen, and an updated percentage complete, which resulted in a cumulative adjustment recorded during the year ended December 31, 2019 that reduced revenue by $9.4 million.

The contract duration is defined as the period in which parties to the contract have present enforceable rights and obligations. For revenue recognition purposes, the Company determined that the duration of the Janssen License and Collaboration Agreement, as amended, began on the effective date of July 13, 2017 and ends upon the later of end of Phase 2a for PTG-200 or upon dosing of the third patient in Phase 2b for a second-generation compound.

The Company uses the most likely amount method to estimate variable consideration included in the transaction price. Variable consideration after the First Amendment consists of future milestone payments and cost sharing payments from Janssen for agreed upon services offset by development costs reimbursement payable to Janssen. Cost sharing payments from Janssen relate to the agreed upon services for development activities that the Company performs within the duration of the contract are included in the transaction price at the Company's share of the estimated budgeted costs for these activities, including primarily internal full-time equivalent effort and third party contract costs. Cost sharing payments to Janssen relate to agreed-upon services for Phase 2 activities that Janssen performs within the duration of the contract are not a distinct service that Janssen transfers to the Company. Therefore, the consideration payable to Janssen is accounted for as a reduction in the transaction price.

The Company concluded that the transaction price of the initial performance obligation under the Janssen License and Collaboration Agreement was $99.4 million as of September 30, 2020, a decrease of $14.5 million from the transaction price of $113.9 million as of June 30, 2020, following an update to the estimate for remaining services to be performed under the performance obligation. In order to determine the transaction price, the Company evaluated all payments to be received during the duration of the contract, net of Phase 2 development costs reimbursement expected to be payable to Janssen. The Company determined that the transaction price of the initial performance obligation as of September 30, 2020 includes the $50.0 million upfront payment, the $25.0 million payment received upon the effectiveness of the First Amendment, the $5.0 million payment triggered by the successful nomination of a second-generation compound, $18.4 million of reimbursement from Janssen for services performed for PTG-200 Phase 2 and for second-generation compound research costs and other services, and estimated variable consideration consisting of a $7.5 million milestone payment subject to the completion of a Phase 1 study for a second-generation compound, offset by $6.5 million of net cost reimbursement to Janssen for services performed. The Company evaluated whether the variable component of the transaction price should be constrained to ensure that a significant reversal of revenue recognized on a cumulative basis as of September 30, 2020 is not probable. The Company concluded that the variable consideration constraint does not further decrease the estimated transaction price as of September 30, 2020. The additional potential development, regulatory and sales milestone payments after the completion of Phase 2b activities that the Company would be eligible to receive are currently outside the contract term as defined for revenue recognition purposes and as such have been excluded from the transaction price. Janssen has also opted in for certain additional services to be performed by the Company that are outside the initial performance obligation, revenue is recognized as these services are delivered.

The Company re-evaluates the transaction price, including variable consideration, at the end of each reporting period and as uncertain events are resolved or other changes in circumstances occur. The Company and Janssen make quarterly cost sharing payments to one another in amounts necessary to ensure that each party bears its contractual share of the overall shared costs incurred.

The Company utilizes a cost-based input method to measure proportional performance and to calculate the corresponding amount of revenue to recognize. In applying the cost-based input methods of revenue recognition, the Company uses actual costs incurred relative to expected costs to fulfill the combined performance obligation. These costs consist primarily of internal FTE effort and third-party contract costs. Revenue will be recognized based on actual costs incurred as a percentage of total estimated costs as the Company completes its performance obligations. A cost-based input method of revenue recognition requires management to make estimates of costs to complete the Company's performance obligations. The Company believes this is the best measure of progress because other measures do not reflect how the Company transfers its performance obligation to Janssen. In making such estimates, significant judgment is required to evaluate assumptions related to cost estimates. The cumulative effect of revisions to estimated costs to complete the Company's performance obligations will be recorded in the period in which changes are identified and amounts can be reasonably estimated. A significant change in these assumptions and estimates could have a material impact on the timing and amount of revenue recognized in future periods.

For the three and nine months ended September 30, 2020, the Company recognized license and collaboration revenue of $12.6 million and $22.0 million, respectively, which was primarily related to an update in the amounts forecast for future services remaining to be performed under the Janssen License and Collaboration Agreement and recognized based on proportional performance. In addition, the Company recorded $0.5 million and $1.0 million in revenue for the three and nine months ended September 30, 2020 related to additional services provided by the Company under the Janssen Collaboration Agreement.

For the three months ended September 30, 2019, the Company recorded $4.1 million of license and collaboration revenue following the contract modification for the First Amendment. For the nine months ended September 30, 2019, the Company recorded a $9.4 million cumulative catchup adjustment reducing license and collaboration revenue, partially offset $5.3 million of license and collaboration revenue following the contract modification for the First Amendment and $1.6 million of license and collaboration revenue recognized during the first quarter of 2019 under the original Janssen license and collaboration agreement. No revenue for additional services was recognized for the three and six months ended June 30, 2019.

The following tables present changes in the Company's contract assets and liabilities during the periods presented (in thousands):

Nine Months Ended September 30, 2020	Balance at Beginning of Period	Additions	Deductions	Balance at End of Period
Contract assets:				
Receivable from collaboration partner - related party	$ 5,955	$ 5,284	$ (8,450)	$ 2,789
Contract asset - related party	$ 800	$ 342	$ (1,142)	$ —
Contract liabilities:				
Deferred revenue - related party	$ 41,530	$ 3,500	$ (24,153)	$ 20,877
Payable to collaboration partner - related party	$ 1,262	$ 2,114	$ (1,299)	$ 2,077

Nine Months Ended September 30, 2019	Balance at Beginning of Period	Additions	Deductions	Balance at End of Period
Contract assets:				
Receivable from collaboration partner - related party	$ 2,042	$ 30,882	$ (31,905)	$ 1,019
Contract asset - related party	$ 2,545	$ 926	$ (2,545)	$ 926
Contract liabilities:				
Deferred revenue - related party	$ 8,223	$ 36,441	$ (5,986)	$ 38,678
Payable to collaboration partner - related party	$ 1,061	$ 1,226	$ (1,267)	$ 1,020

During the three and nine months ended September 30, 2020, the Company recognized revenue of $8.5 million and $11.8 million, respectively, from amounts included in the deferred revenue contract liability balance at the beginning of each period. During the three and nine months ended September 30, 2019, the Company recognized revenue of $2.9 million and $4.5 million, respectively, from amounts included in the deferred revenue contract liability balance at the beginning of each period. None of the costs to obtain or fulfill the contract were capitalized.

Note 4. Fair Value Measurements

Financial assets and liabilities are recorded at fair value. The accounting guidance for fair value provides a framework for measuring fair value, clarifies the definition of fair value and expands disclosures regarding fair value measurements. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability (an exit price) in an orderly transaction between market participants at the reporting date. The accounting guidance

establishes a three-tiered hierarchy, which prioritizes the inputs used in the valuation methodologies in measuring fair value as follows:

Level 1—Inputs are unadjusted quoted prices in active markets for identical assets or liabilities at the measurement date.

Level 2—Inputs (other than quoted market prices included in Level 1) are either directly or indirectly observable for the asset or liability through correlation with market data at the measurement date and for the duration of the instrument's anticipated life.

Level 3—Inputs reflect management's best estimate of what market participants would use in pricing the asset or liability at the measurement date. Consideration is given to the risk inherent in the valuation technique and the risk inherent in the inputs to the model.

In determining fair value, the Company utilizes quoted market prices, broker or dealer quotations, or valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs to the extent possible and considers counterparty credit risk in its assessment of fair value.

The following table presents the fair value of the Company's financial assets determined using the inputs defined above (in thousands).

	September 30, 2020			
	Level 1	Level 2	Level 3	Total
Assets:				
Money market funds	$ 45,337	$ —	$ —	$ 45,337
Commercial paper	—	41,683	—	41,683
Corporate debt securities	—	21,434	—	21,434
U.S. Treasury and agency securities	—	87,205	—	87,205
Total financial assets	$ 45,337	$ 150,322	$ —	$ 195,659

	December 31, 2019			
	Level 1	Level 2	Level 3	Total
Assets:				
Money market funds	$ 12,964	$ —	$ —	$ 12,964
Commercial paper	—	44,282	—	44,282
Corporate debt securities	—	33,662	—	33,662
U.S. Treasury and agency securities	—	40,810	—	40,810
Total financial assets	$ 12,964	$ 118,754	$ —	$ 131,718

The Company's commercial paper, corporate debt securities and U.S. Treasury and agency securities, including U.S. Treasury bills, are classified as Level 2 as they were valued based upon quoted market prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active and model-based valuation techniques for which all significant inputs are observable in the market or can be corroborated by observable market data for substantially the full term of the assets.

Note 5. Cash Equivalents and Marketable Securities

Cash equivalents and marketable securities consisted of the following (in thousands):

	September 30, 2020			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Money market funds	$ 45,337	$ —	$ —	$ 45,337
Commercial paper	41,683	—	—	41,683
Corporate debt securities	21,435	3	(4)	21,434
U.S. Treasury and agency securities	87,195	10	—	87,205
Total cash equivalents and marketable securities	$ 195,650	$ 13	$ (4)	$ 195,659
Classified as:				
Cash equivalents				$ 79,285
Marketable securities - current				110,349
Marketable securities - noncurrent				6,025
Total cash equivalents and marketable securities				$ 195,659

	December 31, 2019			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Money market funds	$ 12,964	$ —	$ —	$ 12,964
Commercial paper	44,284	2	(4)	44,282
Corporate debt securities	33,653	11	(2)	33,662
U.S. Treasury and agency securities	40,798	14	(2)	40,810
Total cash equivalents and marketable securities	$ 131,699	$ 27	$ (8)	$ 131,718
Classified as:				
Cash equivalents				$ 31,707
Marketable securities - current				100,011
Total cash equivalents and marketable securities				$ 131,718

Marketable securities – current of $110.3 million and $100.0 million held at September 30, 2020 and December 31, 2019, respectively, had contractual maturities of less than one year. Marketable securities – noncurrent of $6.0 million held at September 30, 2020 had contractual maturities of at least one year but less than two years. There were no material realized gains or realized losses on marketable securities for the periods presented. The Company has not experienced any material credit losses on its investments. The Company does not intend to sell its securities that are in an unrealized loss position, and it is unlikely that the Company will be required to sell its securities before recovery of their amortized cost basis, which may be maturity. Factors considered in determining whether a loss is temporary include the length of time and extent to which the fair value has been less than the amortized cost basis and whether the Company intends to sell the security or whether it is more likely than not that the Company would be required to sell the security before recovery of the amortized cost basis.

Note 6. Accrued Expenses and Other Payables

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

	September 30, 2020	December 31, 2019
Accrued clinical and research related expenses	$ 10,160	$ 7,232
Accrued employee related expenses	4,371	4,637
Accrued professional service fees	857	301
Accrued interest payable	2	68
Other	128	122
Total accrued expenses and other payables	$ 15,518	$ 12,360

Note 7. Research Collaboration and License Agreement

In October 2013, the Company's former collaboration partner decided to abandon a collaboration program with the Company and, pursuant to the terms of the agreement between the Company and the former collaboration partner, the Company elected to assume responsibility for the development and commercialization of the product. Upon the former collaboration partner's abandonment, it assigned to the Company certain intellectual property that relates to the products arising from the collaboration. The Company has the right, but not the obligation, to further develop and commercialize the product and, if the Company successfully develops and commercializes PTG-300 without a partner, the former collaboration partner could be eligible to receive up to an additional aggregate of $128.0 million for the achievement of certain development, regulatory and sales milestone events pursuant to the terms of the agreement between the Company and the former collaboration partner. Milestone payments to collaboration partners are recorded as research and development expenses in the period that the expense is incurred. No research and development expense was recorded under the agreement between the Company and the former collaboration partner for the three and nine months ended September 30, 2020 and 2019.

See Note 10. Commitments and Contingencies – Legal Proceedings for additional information on arbitration proceedings related to this research collaboration and license agreement.

Note 8. Government Programs

Research and Development Tax Incentive

During the three and nine months ended September 30, 2020, the Company recognized AUD 0.4 million ($0.3 million) and AUD 0.8 million ($0.5 million), respectively, as a reduction of research and development expenses in connection with the research and development cash tax incentive from the ATO. During the nine months ended September 30, 2019, the Company recognized AUD 1.8 million ($1.2 million) of research and development expense in connection with the research and development tax incentive from the ATO because the Company determined that it had exceeded the annual turnover limit to claim such amounts following the receipt of certain payments under the Janssen License and Collaboration Agreement. No such amounts were recorded during the three months ended September 30, 2019. As of September 30, 2020, the research and development cash tax incentive receivable was AUD 0.8 million ($0.5 million). There was no research and development cash tax incentive receivable as of December 31, 2019.

Small Business Innovation Research ("SBIR") Grants

The Company has received SBIR grants from the National Institutes of Health ("NIH") in support of research aimed at its product candidates. The Company recognizes a reduction to research and development expenses when expenses related to the grants have been incurred and the grant funds become contractually due from NIH. The Company recorded $0.3 million as a reduction of research and development expenses for the nine months ended September 30, 2020. No such amounts were recorded during the three months ended September 30, 2020. The Company recorded $0.6 million and $1.1 million as a reduction of research and development expenses for the three and nine months ended September 30, 2019, respectively. The Company recorded a receivable for $0.3 million as of

December 31, 2019 to reflect the eligible costs incurred under the grants that are contractually due to the Company. The Company recorded no such receivable as of September 30, 2020. This receivable is included in prepaid expenses and other current assets on the condensed consolidated balance sheets.

Note 9. Debt

On October 30, 2019, the Company entered into a Credit and Security Agreement, dated as of October 30, 2019 (the "Closing Date") by and among the Company, MidCap Financial Trust, as a lender, Silicon Valley Bank, as a lender, the other lenders party thereto from time to time and MidCap Financial Trust, as administrative agent and collateral agent ("Agent") (the "Term Loan Credit Agreement"), which provides for a $50.0 million term loan facility. The Term Loan Credit Agreement provides for (i) on the Closing Date, $10.0 million aggregate principal amount of term loans, (ii) at the Company's option, until December 31, 2020, an additional $20.0 million term loan facility subject to the satisfaction of certain conditions, including clinical milestone achievement, and (iii) at the Company's option, until September 30, 2021, an additional $20.0 million term loan facility subject to the satisfaction of certain conditions, including clinical milestone achievement, (collectively, the "Term Loans"). The Company intends to use any proceeds from drawdowns on the Term Loans for general corporate purposes

The Term Loans are subject to an origination fee of 0.25% for each funded tranche under the Term Loan Credit Agreement and bear interest at an annual rate based on prime rate plus 2.91%, subject to a prime rate floor of 4.94%. The Company will make interest-only payments on the Term Loans outstanding during the initial 24 months, followed by 24 months of principal and interest payments. At the Company's option, the Company may prepay the outstanding principal balance of the Term Loans in whole or in part, subject to a prepayment premium of 3.0% of any amount prepaid if the prepayment occurs through and including the first anniversary of the Closing Date, 2.0% of the amount prepaid if the prepayment occurs after the first anniversary of the closing date through and including the second anniversary of the closing date, and 1.0% of any amount prepaid after the second anniversary of the closing date and prior to October 1, 2023. An additional fee of 2.85% of the amount of Term Loans advanced by the Lenders will be due upon prepayment or repayment of the Term Loans.

The Term Loan Credit Agreement requires the Company to maintain cash and cash equivalents of at least 35% of the outstanding Term Loans at all times and is secured by a perfected security interest in all of the Company's assets except for intellectual property and certain other customary excluded property pursuant to the terms of the Term Loan Credit Agreement. The Term Loan Credit Agreement contains other covenants that limit the Company's ability and the ability of its subsidiaries to perform certain actions, including obligations to not pay dividends and to maintain unrestricted cash balance above certain threshold, non-occurrence of material adverse change, non-occurrence of change of control and other customary affirmative and negative covenants. The violation of any provision of covenants will result in default for the Company. The Term Loan Credit Agreement includes a clause which allows lenders to accelerate repayment upon the occurrence of certain events of default. In June 2020, the Company prepaid the outstanding $10.0 million balance on the term loan as well as $0.6 million for related prepayment and exit fees. Accordingly, the company accelerated amortization of $0.1 million related to capitalized and unamortized debt issuance costs, which is included as part of the $0.6 million loss on early repayment of debt. As of September 30, 2020, the Company was in compliance with the debt covenants, no event of default occurred and the probability of occurrence of event of default was considered remote.

The Company's long-term debt balance was as follows for the periods presented (dollars in thousands):

	Annual Interest Rate	September 30, 2020	December 31, 2019
Term loan (matures October 1, 2023)	7.85%	$ —	$ 10,000
Debt issuance costs, net of amortization		—	(222)
Accrued final payment fee		—	16
Long-term debt, net		$ —	$ 9,794

Note 10. Commitments and Contingencies

Legal Proceedings

The Company is a party to the legal action described below. The Company recognizes accruals for such actions to the extent that it concludes that a loss is both probable and reasonably estimable. The Company accrues for the best estimate of a loss within a range; however, if no estimate in the range is better than any other, it accrues the minimum amount in the range. If the Company determines that a loss is reasonably possible and the loss or range of loss can be estimated, it discloses the possible loss.

On January 23, 2020, the Company initiated arbitration proceedings with the International Court of Arbitration of the International Chamber of Commerce against Zealand Pharma A/S ("Zealand") related to a collaboration agreement the Company and Zealand entered into in 2012 and terminated in 2014. The agreement provides for certain post-termination payment obligations to Zealand with respect to compounds related to the collaboration that the Company elects to further develop and meet specified conditions. In the Company's arbitration claim, it is seeking a declaration that the Company has no past, present or future milestone or royalty payment obligations under the agreement with respect to PTG-300 because PTG-300 is not a compound relating to the collaboration for which post-termination payments to Zealand apply. The Company is also seeking repayment of $1.0 million in milestone payments it has made, as well as its costs, fees, and expenses of the proceeding. Zealand disputes the Company's claims and has filed counterclaims for payment of an additional future milestone, as well as payment of their arbitration costs, fees and expenses. The arbitration is pending. If Zealand prevails in the arbitration, the Company could be required to make contractual payments to Zealand described in its prior periodic reports filed with the SEC. Those payments could include milestone payments for the achievement of certain development, regulatory and sales milestone events, and a low single digit royalty on worldwide net sales of PTG-300. Although the Company cannot predict with certainty the ultimate outcome of these arbitration proceedings, it has concluded that the probability of any related loss is remote and therefore no related accruals were recognized as of September 30, 2020.

Note 11. Stockholders' Equity

In September 2017, the Company filed a registration statement on Form S-3 with the Securities and Exchange Commission (File No. 333-220314) that was declared effective as of October 5, 2017 and permits the offering, issuance, and sale by the Company of up to a maximum aggregate offering price of $200.0 million of its common stock, preferred stock and certain debt securities (the "2017 Form S-3"). Up to a maximum of $50.0 million of the maximum aggregate offering price of $200.0 million may be issued and sold pursuant to an ATM financing facility under a sales agreement (the "2017 Sales Agreement"). The 2017 Sales Agreement was terminated in 2019. The Company sold 1,924,957 and 2,846,641 shares of its common stock pursuant to the 2017 Sales Agreement during the three and nine months ended September 30, 2019, respectively, for net proceeds of $23.9 and $34.5 million, respectively, after deducting issuance costs. As of September 30, 2020, $72.0 million of common stock remained available for sale under the 2017 Form S-3, which subsequently expired in October 2020.

In August 2018, the Company entered into a Securities Purchase Agreement with certain accredited investors (each, an "Investor" and, collectively, the "Investors"), pursuant to which the Company sold an aggregate of 2,750,000 shares of its common stock at a price of $8.00 per share, for aggregate net proceeds of $21.7 million, after deducting offering expenses payable by the Company. In a concurrent private placement, the Company issued the Investors warrants to purchase an aggregate of 2,750,000 shares of its common stock (each, a "Warrant" and, collectively, the "Warrants"). Each Warrant is exercisable from August 8, 2018 through August 8, 2023. Warrants to purchase 1,375,000 shares of the Company's common stock have an exercise price of $10.00 per share and Warrants to purchase 1,375,000 shares of the Company's common stock have an exercise price of $15.00 per share. The exercise price and number of shares of common stock issuable upon the exercise of the Warrants (the "Warrant Shares") are subject to adjustment in the event of any stock dividends and splits, reverse stock split, recapitalization, reorganization or similar transaction, as described in the Warrants. Under certain circumstances, the Warrants may be exercisable on a "cashless" basis. In connection with the issuance and sale of the common stock and Warrants, the Company granted the Investors certain registration rights with respect to the Warrants and the Warrant Shares. The common stock and warrants are classified as equity in accordance with Accounting Standards Codification Topic 480*, Distinguishing Liabilities from*

Equity (“ASC 480”), and the net proceeds from the transaction were recorded as a credit to additional paid-in capital. As of September 30, 2020, none of the Warrants have been exercised.

In December 2018, the Company entered into an exchange agreement (the “Exchange Agreement”) with an Investor and its affiliates (the “Exchanging Stockholders”), pursuant to which the Company exchanged an aggregate of 1,000,000 shares of the Company’s common stock, par value $0.00001 per share, owned by the Exchanging Stockholders for pre-funded warrants (the “Exchange Warrants”) to purchase an aggregate of 1,000,000 shares of common stock (subject to adjustment in the event of any stock dividends and splits, reverse stock split, recapitalization, reorganization or similar transaction, as described in the Exchange Warrants), with an exercise price of $0.00001 per share. The Exchange Warrants will expire ten years from the date of issuance. The Exchange Warrants are exercisable at any time prior to expiration except that the Exchange Warrants cannot be exercised by the Exchanging Stockholders if, after giving effect thereto, the Exchanging Stockholders would beneficially own more than 9.99% of the Company’s common stock, subject to certain exceptions. In accordance with Accounting Standards Codification Topic 505, *Equity*, the Company recorded the retirement of the common stock exchanged as a reduction of common stock shares outstanding and a corresponding debit to additional paid-in-capital at the fair value of the Exchange Warrants on the issuance date. The Exchange Warrants are classified as equity in accordance with ASC 480, and fair value of the Exchange Warrants was recorded as a credit to additional paid-in capital and is not subject to remeasurement. The Company determined that the fair value of the Exchange Warrants is substantially similar to the fair value of the retired shares on the issuance date due to the negligible exercise price for the Exchange Warrants. During the second quarter of 2019, Exchange Warrants to purchase 600,000 shares were net exercised, resulting in the issuance of 599,997 shares of common stock. As of September 30, 2020, 400,000 of the Exchange Warrants remain unexercised

In October 2019, the Company filed a registration statement on Form S-3 (File No. 333-234414) that was declared effective as of November 22, 2019 and permits the offering, issuance, and sale by the Company of up to a maximum aggregate offering price of $250.0 million of its common stock, preferred stock, debt securities and warrants (the “2019 Form S-3”). Up to a maximum of $75.0 million of the maximum aggregate offering price of $250.0 million may be issued and sold pursuant to an ATM financing facility under a sales agreement entered into by the Company on November 27, 2019 (the “2019 Sales Agreement”). In May 2020, the Company completed an underwritten public offering of 7,000,000 shares of common stock at a public offering price of $14.00 per share, and issued an additional 1,050,000 shares of its common stock at a price of $14.00 per share following the underwriters’ exercise of their option to purchase additional shares. Net proceeds, after deducting underwriting commissions and offering costs paid by the Company, were $105.3 million. The Company sold 333,047 and 1,565,840 shares of its common stock pursuant to the 2019 Sales Agreement during the three and nine months ended September 30, 2020, respectively, for net proceeds of $6.4 million and $23.0 million, respectively, after deducting issuance costs. As of September 30, 2020, a total of $113.5 million of common stock remained available for sale under the 2019 Form S-3, $51.2 million of which remained available for sale under the ATM financing facility.

Note 12. Equity Plans

Equity Incentive Plan

In July 2016, the Company’s board of directors and stockholders approved the Company’s 2016 Equity Incentive Plan (the “2016 Plan”) to replace the 2007 Stock Option Plan. The 2016 Plan is administered by the board of directors or a committee appointed by the board of directors, which determines the types of awards to be granted, including the number of shares subject to the awards, the exercise price and the vesting schedule. Awards granted under the 2016 Plan expire no later than ten years from the date of grant. As of September 30, 2020, 552,511 shares were available for issuance under the 2016 Plan.

Inducement Plan

In May 2018, the Company’s board of directors approved the 2018 Inducement Plan, a non-stockholder approved stock plan, under which it reserved and authorized up to 750,000 shares of the Company’s common stock in order to award options and restricted stock unit awards to persons that were not previously employees or directors of the Company, or following a bona fide period of non-employment, as an inducement material to such persons entering

into employment with the Company, within the meaning of Rule 5635(c)(4) of the NASDAQ Listing Rules. The 2018 Inducement Plan is administered by the board of directors or the Compensation Committee of the board, which determines the types of awards to be granted, including the number of shares subject to the awards, the exercise price and the vesting schedule. Awards granted under the 2018 Inducement Plan expire no later than ten years from the date of grant. On February 18, 2020, the Compensation Committee of the board approved the amendment and restatement of the 2018 Inducement Plan (the "Amended and Restated Inducement Plan") to provide for the reservation of an additional 500,000 shares of the Company's common stock for issuance under the Amended and Restated Inducement Plan. As of September 30, 2020, 630,000 shares were available for issuance under the Amended and Restated Inducement Plan.

Stock Options

Stock option activity under the Company's equity incentive and inducement plans is set forth below:

	Options Outstanding	Weighted-Average Exercise Price Per Share	Weighted-Average Remaining Contractual Life (years)	Aggregate Intrinsic Value (1) (in millions)
Balances at December 31, 2019	3,681,521	$ 11.64	7.78	
Options granted	1,370,600	10.32		
Options exercised	(257,714)	7.34		
Options forfeited	(197,588)	11.88		
Balances at September 30, 2020	4,596,819	$ 11.47	7.81	$ 38.8
Options exercisable – September 30, 2020	2,464,699	$ 12.15	6.82	$ 19.6
Options vested and expected to vest – September 30, 2020	4,596,819	$ 11.47	7.81	$ 38.8

(1) The aggregate intrinsic values were calculated as the difference between the exercise price of the options and the closing price of the Company's common stock on September 30, 2020. The calculation excludes options with an exercise price higher than the closing price of the Company's common stock on September 30, 2020.

During the nine months ended September 30, 2020, the estimated weighted-average grant-date fair value of common stock underlying options granted to employees was $6.82 per share.

Stock Options Valuation Assumptions

The fair value of employee stock option awards was estimated at the date of grant using a Black-Scholes option-pricing model with the following assumptions:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Expected term (in years)	5.27 - 6.08	5.00 - 6.08	5.27 - 6.08	5.00 - 6.08
Expected volatility	84.5% - 85.1%	61.0% - 63.4%	72.1% - 85.1%	61.0% - 63.4%
Risk-free interest rate	0.23% - 0.40%	1.42% - 1.90%	0.23% - 1.44%	1.42% - 2.58%
Dividend yield	—	—	—	—

In determining the fair value of the options granted, the Company uses the Black-Scholes option-pricing model and assumptions discussed below. Each of these inputs is subjective, and expected volatility generally requires significant judgment to determine.

Expected Term—The Company's expected term represents the period that the Company's options granted are expected to be outstanding and is determined using the simplified method (based on the mid-point between the vesting date and the end of the contractual term). The Company has limited historical information to develop reasonable

expectations about future exercise patterns and post-vesting employment termination behavior for its stock option grants.

Expected Volatility— Prior to January 1, 2020, the Company's expected volatility was estimated based on the average volatility for comparable publicly traded biopharmaceutical companies over a period equal to the expected term of the stock option grants. Beginning January 1, 2020, the Company's expected volatility was estimated based upon a mix of 75% of the average volatility for comparable publicly traded biopharmaceutical companies over a period equal to the expected term of the stock option grants and 25% of the volatility of the Company's stock price since its initial public offering in August 2016.

Risk-Free Interest Rate—The risk-free interest rate is based on the U.S. Treasury zero coupon issues in effect at the time of grant for periods corresponding with the expected term of option.

Expected Dividend—The Company has never paid dividends on its common stock and has no plans to pay dividends on its common stock. Therefore, the Company used an expected dividend yield of zero.

Restricted Stock Units

Restricted stock unit activity under the Company's equity incentive plans is set forth below:

	Number of Shares	Weighted Average Grant Date Fair Value
Unvested at December 31, 2019	278,482	$ 10.08
Granted	142,000	7.80
Vested	(131,147)	9.52
Forfeited	(26,727)	8.97
Unvested at September 30, 2020	262,608	$ 9.24

Employee Stock Purchase Plan

The 2016 Employee Stock Purchase Plan ("2016 ESPP") allows eligible employees to purchase shares of the Company's common stock at a discount through payroll deductions of up to 15% of their eligible compensation. At the end of each offering period, eligible employees are able to purchase shares at 85% of the lower of the fair market value of the Company's common stock at the beginning of the offering period or at the end of each applicable purchase period. During the three and nine months ended September 30, 2020, a total of 35,781 and 92,523 shares of common stock were issued under the 2016 ESPP, respectively, and 757,647 shares remain available for issuance.

Stock-Based Compensation

Total stock-based compensation expense was as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Research and development	$ 1,006	$ 1,137	$ 3,098	$ 3,237
General and administrative	882	1,064	2,834	2,956
Total stock-based compensation expense	$ 1,888	$ 2,201	$ 5,932	$ 6,193

As of September 30, 2020, total unrecognized stock-based compensation expense was approximately $14.7 million, which the Company expects to recognize over a weighted-average period of approximately 2.8 years.

Note 13. Income Taxes

The Company recorded income tax expense of $1.3 million for the nine months ended September 30, 2020, representing an effective income tax rate of 2.8%. No income tax expense was recorded for the three months ended September 30, 2020. The Company recorded income tax benefit of $0.1 million and $1.5 million for the three and nine months ending September 30, 2019, respectively, representing an effective income tax rate of (0.6)% and (2.5)%, respectively. Income tax for all periods presented was primarily related to foreign income tax. During the second quarter of 2020, the Company's Australia subsidiary sold beneficial rights to discovery intellectual property to its U.S. entity, and the U.S. entity reimbursed the Australia subsidiary for certain direct development costs. Upon completion of the sale, the Company analyzed tax planning strategies and future income and concluded that a valuation allowance is necessary for its Australia subsidiary. Income tax expense for the nine months ended September 30, 2020 reflects this sale of intellectual property rights, cost reimbursements and related adjustments to the deferred tax asset, establishing a valuation allowance and certain uncertain tax position liabilities. Income tax benefit for the nine months ended September 30, 2019 included a discrete tax benefit of approximately $1.1 million for the 2017 Australia refundable research and development tax offset. The Company's effective income tax rate for all periods presented differs from the Company's federal statutory rate of 21%, primarily because its U.S. loss cannot be benefited due to the full valuation allowance position and reduced by foreign taxes.

On March 27, 2020, the Coronavirus Aid, Relief and Economic Security Act ("CARES Act") was enacted and signed into law in response to the COVID-19 pandemic. GAAP requires recognition of the tax effects of new legislation during the reporting period that includes the enactment date. The CARES Act includes changes to the tax provisions that benefits business entities and makes certain technical corrections to the 2017 Tax Cuts and Jobs Act. The tax relief measures for businesses include a five-year net operating loss carryback, suspension of the annual deduction limitation of 80% of taxable income from net operating losses generated in a tax year beginning after December 31, 2017, changes in the deductibility of interest, acceleration of alternative minimum tax credit refunds, payroll tax relief, technical corrections on net operating loss carryforwards for fiscal year taxpayers and allows accelerated deduction qualified improvement property. The CARES Act also provides other non-tax benefits to assist those impacted by the pandemic. The Company evaluated the impact of the CARES Act and determined that there is no material impact to the income tax provision for the three and nine months ended September 30, 2020.

On June 29, 2020, California Assembly Bill 85 was signed into law. The legislation suspends the California net operating loss deductions for 2020, 2021, and 2022 for certain taxpayers and imposes a limitation of certain California tax credits for 2020, 2021, and 2022. The legislation disallows the use of California net operating loss deductions if the taxpayer recognizes business income and its adjusted gross income is greater than $1,000,000. The carryover periods for net operating loss deductions disallowed by this provision will be extended. Additionally, any business credit will only offset a maximum of $5,000,000 of California tax. Given the Company's expected loss position in the current year, the new legislation will not impact the current year provision. The Company will continue to monitor possible California net operating loss and credit limitations in future periods.

Note 14. Net Loss per Share

As the Company had net losses for the three and nine months ended September 30, 2020 and 2019, respectively, all potential common shares were determined to be anti-dilutive. The following table sets forth the computation of basic and diluted net loss per share (in thousands, except share and per share data):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Numerator:				
Net loss	$ (7,763)	$ (16,409)	$ (47,264)	$ (59,686)
Denominator:				
Weighted-average shares used to compute net loss per common share, basic and diluted	37,386,881	26,956,957	32,647,524	25,315,512
Net loss per shares, basic and diluted	$ (0.21)	(0.61)	$ (1.45)	$ (2.36)

The following outstanding shares of potentially dilutive securities have been excluded from diluted net loss per share computations for the periods presented because their inclusion would be anti-dilutive:

	September 30,	
	2020	2019
Options to purchase common stock	4,596,819	3,709,631
Common stock warrants	2,750,000	2,750,000
Restricted stock units	262,608	284,445
ESPP shares	28,618	41,263
Total	7,638,045	6,785,339

Note 15. Restructuring

On May 7, 2020, the Company approved a limited reduction in force plan affecting approximately 12% of the Company's employee base and informed the affected employees. The reduction-in-force plan was completed by the end of the second quarter of 2020. Total cash expenditures for the reduction in force plan were $0.3 million, substantially all of which were related to employee severance and benefits costs.

Note 16. Subsequent Event

The Company sold 917,879 shares of its common stock under its ATM financing facility pursuant to the 2019 Sales Agreement during the period from October 1, 2020 through the date of issuance of this Quarterly Report on Form 10-Q. Net proceeds were $18.9 million, after deducting issuance costs. As of the date of issuance of this Quarterly Report on Form 10-Q, a total of $94.2 million of common stock remained available for sale under the 2019 Form S-3, $31.9 million of which remained available for sale under the ATM financing facility.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis of our financial condition and results of operations together with our Unaudited Condensed Consolidated Financial Statements and related notes included in Part I, Item 1 of this quarterly report (this "Quarterly Report") on Form 10-Q and with our Audited Consolidated Financial Statements and related notes thereto for the year ended December 31, 2019, included in our Annual Report on Form 10-K filed with the Securities and Exchange Commission ("SEC") on March 10, 2020.

Forward-Looking Statements

This Quarterly Report contains certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). These statements involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performances or achievements expressed or implied by the forward-looking statements. In some cases, you can identify forward-looking statements by terms such as "anticipates," "believes," "could," "estimates," "expects," "intends," "may," "plans," "potential," "predicts," "projects," "should," "will," "would," and similar expressions intended to identify forward-looking statements. Forward-looking statements reflect our current views with respect to future events, are based on assumptions, and are subject to risks, uncertainties and other important factors. In particular, statements, whether expressed or implied, concerning, among other things, the potential for our programs, the timing of our clinical trials, the potential for eventual regulatory approval and commercialization of our product candidates and our potential receipt of milestone payments and royalties under our collaboration agreements, future operating results or the ability to generate sales, income or cash flow, and the impact of the ongoing COVID-19 pandemic are forward-looking statements. They involve risks, uncertainties and assumptions that are beyond our ability to control or predict, including those discussed in Part II, Item 1A, of this Quarterly Report. While we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. Given these risks, uncertainties and other important factors, you should not place undue reliance on these forward-looking statements. Also, forward-looking statements represent our estimates and assumptions only as of the date of this Quarterly Report. Except as required by law, we assume no obligation to update any forward-looking statements publicly, or to update the reasons actual results could differ materially from those anticipated in any forward-looking statements, even if new information becomes available in the future. "Protagonist," the Protagonist logo and other trademarks, service marks and trade names of Protagonist are registered and unregistered marks of Protagonist Therapeutics, Inc. in the United States and other jurisdictions.

Overview

We are a clinical-stage biopharmaceutical company that utilizes a proprietary technology platform to discover and develop novel peptide-based drugs to address significant unmet medical needs and transform existing treatment paradigms for patients. We have three assets in various stages of clinical development derived from this platform.

Our Product Pipeline

Our most advanced clinical asset, PTG-300, is an injectable hepcidin mimetic in development for the potential treatment of erythrocytosis, iron overload and other blood disorders. Hepcidin is a key hormone in regulating iron equilibrium and is critical to the proper development of red blood cells. PTG-300 mimics the effect of the natural hormone hepcidin, but with greater potency, solubility and stability. We initiated a Phase 2 study in polycythemia vera ("PV") in the third quarter of 2019 and a Phase 2 study in hereditary hemochromatosis ("HH") in January 2020. Preliminary and early results from our initial Phase 2 PV efficacy data from a small number of patients demonstrates the ability of PTG-300 to eliminate the need for phlebotomy by controlling hematocrit levels below 45% on an individual patient basis. The American Society for Hematology has accepted four posters and one oral presentation

relating to PTG-300 for its virtual annual meeting to be held in December 2020, including updated Phase 2 results for PTG-300 in PV. PTG-300 has a unique mechanism of action in the potential treatment of PV, which allows it to decrease and maintain hematocrit levels within the range of recommended clinical guidelines without causing the iron deficiency that may occur with frequent phlebotomy. We have announced the selection of PV as our first indication for a potential pivotal study to begin in 2021. In June 2020, the U.S. Food and Drug Administration granted orphan drug designation for PTG-300 for the treatment of PV. In October 2020, the European Medicines Agency granted orphan drug designation for PTG-300 for the treatment of PV. We discontinued development of PTG-300 for anemia associated with beta-thalassemia and myelodysplastic syndromes during the first quarter of 2020 and are redirecting the majority of our PTG-300 efforts to the PV indication, while also continuing our exploration of PTG-300 in HH.

Our clinical assets PTG-200 and PN-943 are orally delivered drugs currently in development for inflammatory bowel disease ("IBD"), a gastrointestinal ("GI") disease consisting primarily of ulcerative colitis ("UC") and Crohn's disease ("CD"), that block biological pathways currently targeted by marketed injectable antibody drugs. Our orally stable peptide approach offers targeted delivery to the GI tissue compartment. We believe that, compared to antibody drugs, these product candidates have the potential to provide improved safety due to minimal exposure in the blood, increased convenience and compliance due to oral delivery, and the opportunity for the earlier introduction of targeted oral therapy. As a result, if approved, they may transform the existing treatment paradigm for IBD.

PTG-200 (also referenced as JNJ-67864238) is an orally delivered gut-restricted Interleukin-23 receptor ("IL-23R") antagonist for the treatment of IBD. In May 2017, we entered into a worldwide license and collaboration agreement with Janssen Biotech, Inc. ("Janssen"), a Johnson & Johnson company, to co-develop and co-detail PTG-200 and certain related compounds for all indications, including IBD. The agreement with Janssen was amended in May 2019 to expand the collaboration by supporting efforts towards second-generation IL-23R antagonists, triggering a $25.0 million milestone payment to us. In January 2020, as part of the expanded research collaboration, we announced the identification and nomination of an orally delivered IL-23R antagonist peptide as a second-generation development candidate, triggering a $5.0 million milestone payment to us. See Note 3 to the condensed consolidated financial statements included elsewhere in this report for additional information. Janssen initiated a global Phase 2 clinical study for PTG-200 in moderate-to-severe Crohn's disease in the fourth quarter of 2019. Because of the COVID-19 pandemic, we have suspended guidance on a timeline for PTG-200 Phase 2 study completion. In October 2020, we announced the selection of two second-generation IL-R antagonists for advancement into clinical development, PN-235 (also referenced as JNJ-77242113) and PN-232 (also referenced as JNJ-75105186). We expect to initiate a Phase 1 study of PN-235 in the fourth quarter of 2020. The advancement of three different oral co-development candidates provides us with several strategic options for development in multiple indications. We are also continuing our joint research efforts to identify additional IL-23R antagonists.

PN-943 is an orally delivered, gut-restricted, alpha-4-beta-7 ("α4β7") specific integrin antagonist. We developed PN-943 as a potentially more potent orally delivered, gut-restricted α4β7 backup compound to PTG-100, our first-generation orally delivered gut-restricted α4β7 inhibitor that was being developed for treatment of IBD. In 2019, we completed a Phase 1 single ascending dose ("SAD") and multiple ascending dose ("MAD") clinical study of PN-943 in healthy volunteers to evaluate safety, pharmacokinetics and pharmacodynamics. The pharmacodynamic results indicated that the administration of PN-943 was well tolerated with results of target engagement that were supportive of the higher potency of PN-943 as compared to PTG-100. We submitted a U.S. IND for PN-943 in December 2019, which took effect in January 2020, and have initiated a Phase 2 proof of concept study in UC. In light of the COVID-19 pandemic, we are continuing to review all aspects of the planned Phase 2 study and are suspending guidance on a timeline for study progress and completion.

Our clinical assets are all derived from our proprietary discovery platform. Our platform enables us to engineer novel, structurally constrained peptides that retain key advantages of both orally delivered small molecules and injectable antibody drugs, while overcoming many of their limitations as therapeutic agents. Importantly, constrained peptides can be designed to alleviate the fundamental instability inherent in traditional peptides to allow different delivery forms, such as oral, subcutaneous, intravenous, and rectal. We continue to use our peptide technology platform to discover product candidates against targets in disease areas with significant unmet medical needs.

Impact of COVID-19 on Our Business

We are subject to risks and uncertainties as a result of the COVID-19 pandemic. We are continuing to closely monitor the impact of the COVID-19 pandemic on our business and have taken and continue to take proactive efforts to protect the health and safety of our patients, clinical research staff and employees, and to maintain business continuity. The extent of the impact of the COVID-19 pandemic on our activities is highly uncertain and difficult to predict, as the pandemic and the response to the pandemic continue to rapidly evolve. Capital markets and economies worldwide have also been negatively impacted by the COVID-19 pandemic, and the pandemic has contributed to a global economic recession. Such economic disruption could have a material adverse effect on our business. Policymakers around the globe have responded with fiscal policy actions to support the healthcare industry and economy as a whole. The magnitude and overall effectiveness of these actions remains uncertain.

The severity of the impact of the COVID-19 pandemic on our activities will depend on a number of factors, including, but not limited to, the duration and severity of the pandemic, including the severity of any additional periods of increases or spikes in the number of cases in the areas we and our suppliers operate and areas where our clinical trial sites are located. Accordingly, the extent and severity of the impact on our existing and planned clinical trials and collaboration activities, all of which are uncertain and cannot be predicted. We have experienced delays in our existing and planned clinical trials due to the worldwide impacts of the pandemic. Our future results of operations and liquidity could be adversely impacted by further delays in existing and planned clinical trials and collaboration activities, difficulty in recruiting patients for these clinical trials, supply chain disruptions, the ongoing impact on operating activities and employees and the ongoing impact of any initiatives or programs that we may undertake to address financial and operational challenges. As of the date of issuance of this Quarterly Report on Form 10-Q, the extent to which the COVID-19 pandemic may materially impact our future financial condition, liquidity or results of operations is uncertain.

Operations

We have incurred net losses in each year since inception and we do not anticipate achieving sustained profitability in the foreseeable future. Our net loss was $7.8 million and $47.3 million for the three and nine months ended September 30, 2020, respectively. Our net loss was $16.4 million and $59.7 million for the three and nine months ended September 30, 2019, respectively. As of September 30, 2020, we had an accumulated deficit of $264.9 million. Substantially all of our net losses have resulted from costs incurred in connection with our research and development programs and from general and administrative costs associated with our operations. We expect to continue to incur significant research, development and other expenses related to our ongoing operations and product development, including clinical development activities under our worldwide license and collaboration agreement with Janssen, and, as a result, we expect to continue to incur losses in the future as we continue our development of, and seek regulatory approval for, our product candidates.

Janssen License and Collaboration Agreement

On May 26, 2017, we and Janssen, one of the Janssen Pharmaceutical Companies of Johnson & Johnson, entered into an exclusive license and collaboration agreement for the clinical development, manufacture and potential commercialization of PTG-200 worldwide for the treatment of CD and UC (the "Janssen License and Collaboration Agreement"), which was subsequently amended effective May 7, 2019 (the "First Amendment"). Janssen is a related party to us as Johnson & Johnson Innovation - JJDC, Inc., a significant stockholder of ours, and Janssen are both subsidiaries of Johnson & Johnson. During the third quarter of 2017, we received a non-refundable, upfront cash payment of $50.0 million from Janssen. During the second quarter of 2019, we received a non-refundable cash payment of $25.0 million upon execution of the First Amendment. During the fourth quarter of 2019, we became eligible to receive a cash payment of $5.0 million upon the successful nomination of a second-generation development candidate, which we received during the first quarter of 2020. See Note 3 to the condensed consolidated financial statements included elsewhere in this report for additional information.

Critical Accounting Polices and Estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our unaudited condensed consolidated financial statements, which have been prepared in accordance with United States generally accepted accounting principles. The preparation of these unaudited condensed consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the unaudited condensed consolidated financial statements, as well as the reported revenue generated and expenses incurred during the reporting periods. Our estimates are based on our historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. In making estimates and judgments, management employs critical accounting policies.

Use of Estimates

Due to the COVID-19 pandemic, there has been uncertainty and disruption in the global economy and financial markets. We have taken into consideration any known COVD-19 impacts in our accounting estimates to date and are not aware of any additional specific events or circumstances that would require any additional updates to our estimates or judgments or a revision of the carrying value of our assets or liabilities as of the date of issuance of this Quarterly Report on Form 10-Q. These estimates may change as new events occur and additional information is obtained. Actual results could differ materially from these estimates under different assumptions or conditions.

Stock-Based Compensation

We recognize compensation costs related to stock options accounted for under Accounting Standards Codification Topic 718 – "*Stock Compensation"* based on the estimated fair value of the awards on the date of grant. We estimate the fair value, and the resulting stock-based compensation expense, using the Black-Scholes option-pricing model. The estimated fair value of the stock-based awards is generally recognized on a straight-line basis over the requisite service period, which is generally the vesting period of the respective awards.

The Black-Scholes option-pricing model requires the use of subjective assumptions which determine the fair value of stock-based awards. Expected volatility generally requires significant judgement to determine. Prior to January 1, 2020, our expected volatility was estimated based on the average volatility for comparable publicly traded biopharmaceutical companies over a period equal to the expected term of the stock option grants. Beginning January 1, 2020, our expected volatility was estimated based upon a mix of 75% of the average volatility for comparable publicly traded biopharmaceutical companies over a period equal to the expected term of the stock option grants and 25% of the volatility of our own stock price since our initial public offering in August 2016. These comparable companies are chosen based on their similar size, stage in the life cycle, or area of specialty. We will continue to apply this process until a longer period of historical information regarding the volatility of our own stock price becomes available.

There have been no other material changes in our critical accounting policies during the three and nine months ended September 30, 2020, as compared to those disclosed in *"Management's Discussion and Analysis of Financial Condition and Results of Operations—Critical Accounting Policies and Estimates"* in our Annual Report on Form 10-K for the year ended December 31, 2019 filed with the SEC on March 10, 2020.

Components of Our Results of Operations

License and Collaboration Revenue

Our license and collaboration revenue is derived from payments we receive under the Janssen License and Collaboration Agreement. See Note 3 to the condensed consolidated financial statements included elsewhere in this report for additional information.

Research and Development Expenses

Research and development expenses represent costs incurred to conduct research, such as the discovery and development of our product candidates. We recognize all research and development costs as they are incurred, unless there is an alternative future use in other research and development projects or otherwise. Non-refundable advance payments for goods and services that will be used in future research and development activities are expensed when the activity has been performed or when the goods have been received rather than when payment has been made. In instances where we enter into agreements with third parties to provide research and development services to us, costs are expensed as services are performed. Amounts due under such arrangements may be either fixed fee or fee for service and may include upfront payments, monthly payments, and payments upon the completion of milestones or the receipt of deliverables.

Research and development expenses consist primarily of the following:

- expenses incurred under agreements with clinical study sites that conduct research and development activities on our behalf;
- employee-related expenses, which include salaries, benefits and stock-based compensation;
- laboratory vendor expenses related to the preparation and conduct of pre-clinical, non-clinical, and clinical studies;
- costs related to production of clinical supplies and non-clinical materials, including fees paid to contract manufacturers;
- license fees and milestone payments under license and collaboration agreements; and
- facilities and other allocated expenses, which include expenses for rent and maintenance of facilities, information technology, depreciation and amortization expense and other supplies.

We recognize the funds from grants under government programs as a reduction of research and development expenses when the related research costs are incurred. In addition, we recognize the funds related to our Australian research and development tax incentive that are not subject to refund provisions as a reduction of research and development expenses. The research and development tax incentives are recognized when there is reasonable assurance that the incentives will be received, the relevant expenditure has been incurred and the amount of the consideration can be reliably measured. We evaluate our eligibility under the tax incentive program as of each balance sheet date and make accruals and related adjustments based on the most current and relevant data available. We may alternatively be eligible for a taxable credit in the form of a non-cash tax incentive.

We allocate direct costs and indirect costs incurred to product candidates when they enter clinical development. For product candidates in clinical development, direct costs consist primarily of clinical, pre-clinical, and drug discovery costs, costs of supplying drug substance and drug product for use in clinical and pre-clinical studies, including clinical manufacturing costs, contract research organization fees, and other contracted services pertaining to specific clinical and pre-clinical studies. Indirect costs allocated to our product candidates on a program specific basis include research and development employee salaries, benefits, and stock-based compensation, and indirect overhead and other administrative support costs. Program-specific costs are unallocated when the clinical expenses are incurred for our early stage research and drug discovery projects, our internal resources, employees and infrastructure are not tied to any one research or drug discovery project and are typically deployed across multiple projects. As such, we do not provide financial information regarding the costs incurred for early stage pre-clinical and drug discovery programs on a program-specific basis prior to the clinical development stage.

The following table summarizes our research and development expenses incurred during the periods indicated:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
	(In thousands)			
Clinical and development expense — PTG-300	$ 8,322	$ 9,598	$ 22,881	$ 23,414
Clinical and development expense — PN-943	3,847	4,734	17,867	14,974
Clinical and development expense — PTG-200	183	3,480	1,108	7,333
Clinical and development expense — PTG-100	114	(737)	307	198
Pre-clinical and drug discovery research expense	3,779	783	13,695	3,053
Grants and incentives (reimbursement) expense, net	(250)	(565)	(838)	120
Total research and development expenses	$ 15,995	$ 17,293	$ 55,020	$ 49,092

We expect our clinical development expenses will increase as we progress our product candidates into later stage clinical trials, expand the number of ongoing clinical trials, advance development activities under the Janssen License and Collaboration Agreement, advance our discovery research projects into the pre-clinical stage and continue our early stage research. The process of conducting research, identifying potential product candidates and conducting pre-clinical and clinical trials necessary to obtain regulatory approval is costly and time intensive. We may never succeed in achieving marketing approval for our product candidates regardless of our costs and efforts. The probability of success of our product candidates may be affected by numerous factors, including pre-clinical data, clinical data, competition, manufacturing capability, our ability to receive, and the timing of, regulatory approvals, market conditions, and our ability to successfully commercialize our products if they are approved for marketing. As a result, we are unable to determine the duration and completion costs of our research and development projects or when and to what extent we will generate revenue from the commercialization and sale of any of our product candidates. Our research and development programs are subject to change from time to time as we evaluate our priorities and available resources.

General and Administrative Expenses

General and administrative expenses consist of personnel costs, allocated facilities costs and other expenses for outside professional services, including legal, human resources, audit and accounting services. Personnel costs consist of salaries, benefits and stock-based compensation. Allocated expenses consist of expenses for rent and maintenance of facilities, information technology, depreciation and amortization expense and other supplies. We expect to continue to incur expenses to support our continued operations as a public company, including expenses related to existing and future compliance with rules and regulations of the SEC and those of the national securities exchange on which our securities are traded, insurance expenses, investor relations, professional services and general overhead and administrative costs.

Interest Income

Interest income consists of interest earned on our cash, cash equivalents, and marketable securities, which is comprised of contractual interest, premium amortization and discount accretion.

Interest Expense

Interest expense consists of interest recognized on our long-term debt, which is comprised of contractual interest, amortization of origination fees and other issuance costs, and accretion of final payment fees.

Loss on Early Repayment of Debt

Loss on early repayment of debt consists of prepayment and final payment fees paid upon the early repayment of our long-term debt.

Other Income (Expense), Net

Other income (expense), net consists primarily of amounts related to foreign exchange gains and losses and related items.

Results of Operations

Comparison of the Three Months Ended September 30, 2020 and 2019

	Three Months Ended September 30,		Dollar Change	% Change
	2020	2019		
	(Dollars in thousands)			
License and collaboration revenue - related party	$ 13,114	$ 4,141	$ 8,973	217
Operating expenses:				
Research and development [1]	15,995	17,293	(1,298)	(8)
General and administrative [2]	4,891	4,015	876	22
Total operating expenses	20,886	21,308	(422)	(2)
Loss from operations	(7,772)	(17,167)	9,395	(55)
Interest income	87	762	(675)	(89)
Interest expense	(19)	—	(19)	100
Other expense, net	(59)	(106)	47	(44)
Loss before income tax benefit	(7,763)	(16,511)	8,748	(53)
Income tax benefit	—	102	(102)	(100)
Net loss	$ (7,763)	$ (16,409)	$ 8,646	(53)

(1) Includes $1.0 million and $1.1 million of non-cash stock-based compensation expense for the three months ended September 30, 2020 and 2019, respectively.

(2) Includes $0.9 million and $1.1 million of non-cash stock-based compensation expense for the three months ended September 30, 2020 and 2019, respectively.

License and Collaboration Revenue

License and collaboration revenue increased $9.0 million, or 217%, from $4.1 million for the three months ended September 30, 2019 to $13.1 million for the three months ended September 30, 2020. The increase in license and collaboration revenue was primarily due to an update in the amounts forecast for future services remaining to be performed under the Janssen License and Collaboration Agreement, correspondingly increasing our overall cumulative percentage of completion of our performance obligation during the third quarter of 2020, combined with continued performance and delivery of services under the ongoing Janssen License and Collaboration Agreement.

We have determined that the transaction price of the initial performance obligation under the Janssen License and Collaboration Agreement was $99.4 million as of September 30, 2020, a decrease of $14.5 million from the transaction price of $113.9 million as of June 30, 2020. In order to determine the transaction price, we evaluated all payments expected to be received during the duration of the contract, net of development costs reimbursement expected to be payable to Janssen. We determined that the transaction price of the initial performance obligation includes the $50.0 million upfront payment, the $25.0 million payment received upon the effectiveness of the First Amendment, the $5.0 million payment triggered by the successful nomination of a second-generation compound, $18.4 million of reimbursement from Janssen for services performed for PTG-200 Phase 2 and for second-generation compound research costs and other services, and estimated variable consideration consisting of a $7.5 million milestone payment subject to the completion of a Phase 1 study for a second-generation compound, offset by $6.5 million of net cost reimbursement to Janssen for services performed. The decrease in transaction price from June 30, 2020 to September 30, 2020 was due primarily to a decrease in the forecast of remaining services to be provided under the initial performance obligation. We re-evaluate the transaction price each reporting period and as uncertain events are resolved or other changes in circumstances occur.

Research and Development Expenses

Research and development expenses decreased $1.3 million, or 8%, from $17.3 million for the three months ended September 30, 2019 to $16.0 million for the three months ended September 30, 2020. The decrease was primarily due to a $3.3 million decrease in costs related to PTG-200 where Janssen is responsible for 80% of Phase 2 development costs, a $1.3 million decrease in PTG-300 clinical trial and development costs due primarily to the discontinuation of PTG-300 activities for beta-thalassemia, and a decrease of $0.9 million in PN-943 clinical trial and development costs. These decreases were partially offset by a $3.0 million increase in pre-clinical and discovery research expense, including pre-clinical costs related to our second-generation research collaboration efforts with Janssen, a $0.9 million increase in costs related to PTG-100 due to credit adjustments related to the winding down of activities recognized during the third quarter of 2019, and a $0.3 million increase in grant and incentive reimbursements.

General and Administrative Expenses

General and administrative expenses increased $0.9 million, or 22%, from $4.0 million for the three months ended September 30, 2019 to $4.9 million for the three months ended September 30, 2020 primarily due to increases of $0.8 million in legal expenses, $0.2 million in insurance costs and $0.2 million in salaries expense to support the growth of our operations, partially offset by a $0.3 million decrease in accounting fees.

Interest Income

Interest income decreased $0.7 million, or 89%, from $0.8 million for the three months ended September 30, 2019 to $0.1 million for the three months ended September 30, 2020. This decrease was due primarily to the declining interest rate environment and a change in the mix of marketable securities compared to the prior year period, despite higher interest-earning asset balances.

Income Tax Benefit

Income tax benefit decreased $0.1 million, or 100%, from $0.1 million for the three months ended September 30, 2019 to zero for the three months ended September 30, 2020. Our effective income tax rate was 0% for the three months ended September 30, 2020 as compared to (0.6)% for the three months ended September 30, 2019.

Comparison of the Nine Months Ended September 30, 2020 and 2019

	Nine Months Ended June 30,		Dollar Change	% Change
	2020	2019		
	(Dollars in thousands)			
License and collaboration revenue - related party	$ 22,978	$ (2,488)	$ 25,466	(1,024)
Operating expenses:				
Research and development [1]	55,020	49,092	5,928	12
General and administrative [2]	13,644	11,642	2,002	17
Total operating expenses	68,664	60,734	7.930	13
Loss from operations	(45,686)	(63,222)	17,536	(28)
Interest income	820	2,134	(1,314)	(62)
Interest expense	(471)	—	(471)	100
Loss on early repayment of debt	(585)	—	(585)	100
Other expense, net	(37)	(145)	108	74
Loss before income tax (expense) benefit	(45,959)	(61,233)	15,274	(25)
Income tax (expense) benefit	(1,305)	1,547	(2,852)	(184)
Net loss	$ (47,264)	$ (59,686)	$ 12,422	(21)

(1) Includes $3.1 million and $3.2 million of non-cash stock-based compensation expense for the nine months ended September 30, 2020 and 2019, respectively.
(2) Includes $2.8 million and $3.0 million of non-cash stock-based compensation expense for the nine months ended September 30, 2020 and 2019, respectively.

License and Collaboration Revenue

License and collaboration revenue increased $25.5 million, or 1,024%, from ($2.5) million for the nine months ended September 30, 2019 to $23.0 million for the nine months ended September 30, 2020. The increase in license and collaboration revenue was primarily due to an update in the amounts forecast for future services remaining to be performed under the Janssen License and Collaboration Agreement, correspondingly increasing our overall cumulative percentage of completion of our performance obligation during the third quarter of 2020, coupled with continued performance and delivery of services under the ongoing Janssen License and Collaboration Agreement. The increase in license and collaboration revenue also included the impact of a previously reported one-time cumulative adjustment related to the application of revenue recognition principles following the May 2019 amendment of the Janssen License and Collaboration Agreement that reduced revenue by $9.4 million for the nine months ended September 30, 2019. The contract modification resulted in an increase in the transaction price and additional deliverables under the initial performance obligation, leading to an overall corresponding decrease in the cumulative percentage of completion of our performance obligation for the Janssen License and Collaboration Agreement during the second quarter of 2019. In addition, revenue increased during the nine months ended September 30, 2020 due to an increase in services provided under the initial performance obligation, as well as additional services performed outside of the initial performance obligation.

Research and Development Expenses

Research and development expenses increased $5.9 million, or 12%, from $49.1 million for the nine months ended September 30, 2019 to $55.0 million for the nine months ended September 30, 2020. The increase was primarily due to an increase of $10.6 million in pre-clinical and discovery research expense, including pre-clinical costs related to our second generation research collaboration efforts with Janssen and an increase of $2.9 million in PN-943 clinical trial and development costs including Phase 2 trial costs. These increases were partially offset by a decrease of $6.2 million in costs related to PTG-200 where Jansen is responsible for 80% of Phase 2 development costs, a $1.0 million increase in grant and incentive reimbursements and a decrease of $0.5 million in PTG-300 clinical trial and development costs due primarily to the discontinuation of PTG-300 activities for beta-thalassemia.

General and Administrative Expenses

General and administrative expenses increased $2.0 million, or 17%, from $11.6 million for the nine months ended September 30, 2019 to $13.6 million for the nine months ended September 30, 2020 primarily due to increases of $1.1 million in legal expenses, $0.7 million in insurance costs and $0.6 million in salaries expense to support the growth of our operations, partially offset by a $0.3 million decrease in accounting fees.

Interest Income

Interest income decreased $1.3 million, or 62%, from $2.1 million for the nine months ended September 30, 2019 to $0.8 million for the nine months ended September 30, 2020. This decrease was due primarily to the declining interest rate environment and a change in the mix of marketable securities compared to the prior year period, despite higher interest-earning asset balances.

Interest Expense

Interest expense of $0.5 million for the nine months ended September 30, 2020 reflects contractual interest, amortization of origination fees and other issuance costs, and accretion of final payment fees on our term loan that funded in October 2019 and was repaid in full in June 2020. We had no debt outstanding during the nine months ended September 30, 2019.

Loss on Early Repayment of Debt

Loss on early repayment of debt of $0.6 million for the nine months ended September 30, 2020 reflects prepayment and final payment fees paid incurred in connection with the repayment of our term loan that was funded in October 2019 and was repaid in full in June 2020. We had no debt outstanding during the nine months ended September 30, 2019.

Income Tax Expense

Income tax expense increased $2.8 million, or 184%, from an income tax benefit of $1.5 million for the nine months ended September 30, 2019 to income tax expense of $1.3 million for the nine months ended September 30, 2020. Our effective interest rate was 2.8% for the nine months ended September 30, 2020 as compared to (2.5)% for the nine months ended September 30, 2019. During the second quarter of 2020, our Australia subsidiary sold beneficial rights to discovery intellectual property to our U.S. entity, and the U.S. entity reimbursed the Australia subsidiary for certain direct development costs. Upon completion of the sale, we analyzed tax planning strategies and future income and concluded that a valuation allowance is necessary for our Australia subsidiary. Income tax expense for the nine months ended September 30, 2020 reflects this sale of intellectual property rights, cost reimbursements and related adjustments to the deferred tax asset, establishing a valuation allowance and certain uncertain tax position liabilities. Income tax benefit for the nine months ended September 30, 2019 included a discrete tax benefit of approximately $1.1 million for the 2017 Australia refundable R&D tax offset.

Liquidity and Capital Resources

As of September 30, 2020, we had $200.0 million of cash, cash equivalents and marketable securities and an accumulated deficit of $264.9 million. Our operations have been financed by net proceeds from the sale of shares of our common stock, payments under the Janssen License and Collaboration Agreement and proceeds from our long-term debt. During the third quarter of 2017 we received a non-refundable, upfront payment of $50.0 million from Janssen. During the second quarter of 2019, we received a nonrefundable $25.0 million payment from Janssen upon execution of the First Amendment. During the first quarter of 2020, we received a nonrefundable $5.0 million payment from Janssen.

In 2017, we filed a registration statement on Form S-3 with the Securities and Exchange Commission (File No. 333-220314) that was declared effective as of October 5, 2017 and permits the offering, issuance, and sale by us of up to a maximum aggregate offering price of $200.0 million of our common stock, preferred stock and certain debt securities (the "2017 Form S-3"). Up to a maximum of $50.0 million of the maximum aggregate offering price of $200.0 million may be issued and sold pursuant to an ATM financing facility under a sales agreement (the "2017 Sales Agreement"). The 2017 Sales Agreement was terminated in 2019. We sold 1,924,957 and 2,846,641 shares of our common stock pursuant to the 2017 Sales Agreement during the three and nine months ended September 30, 2019, respectively, for net proceeds of $23.9 million and $34.5 million, respectively, after deducting issuance costs. As of September 30, 2020, $72.0 million of common stock remained available for sale under the 2017 Form S-3, which subsequently expired in October 2020.

In August 2018, we entered into a Securities Purchase Agreement with certain accredited investors (each, an "Investor" and, collectively, the "Investors"), pursuant to which we sold an aggregate of 2,750,000 shares of our common stock at a price of $8.00 per share, for aggregate net proceeds of $21.7 million, after deducting offering expenses payable by us. In a concurrent private placement, we issued the Investors warrants to purchase an aggregate of 2,750,000 shares of our common stock (each, a "Warrant" and, collectively, the "Warrants"). Each Warrant is exercisable from August 8, 2018 through August 8, 2023. Warrants to purchase 1,375,000 shares of our common stock have an exercise price of $10.00 per share and Warrants to purchase 1,375,000 shares of our common stock have an exercise price of $15.00 per share. The exercise price and number of shares of common stock issuable upon the exercise of the Warrants (the "Warrant Shares") are subject to adjustment in the event of any stock dividends and splits, reverse stock split, recapitalization, reorganization or similar transaction, as described in the Warrants. Under certain circumstances, the Warrants may be exercisable on a "cashless" basis. In connection with the issuance and sale of the common stock and Warrants, we granted the Investors certain registration rights with respect to the Warrants and the

Warrant Shares. The common stock and Warrants are classified as equity in accordance with Accounting Standards Codification Topic 480*, Distinguishing Liabilities from Equity* ("ASC 480"), and the net proceeds from the transaction were recorded as a credit to additional paid-in capital. As of September 30, 2020, none of the Warrants have been exercised.

In December 2018, we entered into an exchange agreement (the "Exchange Agreement") with an Investor and its affiliates (the "Exchanging Stockholders"), pursuant to which we exchanged an aggregate of 1,000,000 shares of our common stock, par value $0.00001 per share, owned by the Exchanging Stockholders for pre-funded warrants (the "Exchange Warrants") to purchase an aggregate of 1,000,000 shares of common stock (subject to adjustment in the event of any stock dividends and splits, reverse stock split, recapitalization, reorganization or similar transaction, as described in the Exchange Warrants), with an exercise price of $0.00001 per share. The Exchange Warrants will expire ten years from the date of issuance. The Exchange Warrants are exercisable at any time prior to expiration except that the Exchange Warrants cannot be exercised by the Exchanging Stockholders if, after giving effect thereto, the Exchanging Stockholders would beneficially own more than 9.99% of our common stock, subject to certain exceptions. In accordance with Accounting Standards Codification Topic 505, *Equity* , we recorded the retirement of the common stock exchanged as a reduction of common stock shares outstanding and a corresponding debit to additional paid-in-capital at the fair value of the Exchange Warrants on the issuance date. The Exchange Warrants are classified as equity in accordance with ASC 480, and fair value of the Exchange Warrants was recorded as a credit to additional paid-in capital and is not subject to remeasurement. We determined that the fair value of the Exchange Warrants is substantially similar to the fair value of the retired shares on the issuance date due to the negligible exercise price for the Exchange Warrants. During second quarter of 2019, Exchange Warrants to purchase 600,000 shares were net exercised, resulting in the issuance of 599,997 shares of common stock. As of September 30, 2020, 400,000 of the Exchange Warrants remain unexercised.

In October 2019, we filed a registration statement on Form S-3 (File no. 333-234414) that was declared effective as of November 22, 2019 and permits the offering, issuance, and sale by us of up to a maximum aggregate offering price of $250.0 million of our common stock, preferred stock, debt securities and warrants (the "2019 Form S-3"). Up to a maximum of $75.0 million of the maximum aggregate offering price of $250.0 million may be issued and sold pursuant to an ATM financing facility under a sales agreement we entered into on November 27, 2019 (the "2019 Sales Agreement"). In May 2020, we completed an underwritten public offering of 7,000,000 shares of common stock at a public offering price of $14.00 per share, and issued an additional 1,050,000 shares of our common stock at a price of $14.00 per share following the underwriters' exercise of their option to purchase additional shares. Net proceeds, after deducting underwriting commissions and offering costs paid by us, were $105.3 million. We sold 333,047 and 1,565,840 shares of common stock pursuant to the 2019 Sales Agreement during the three and nine months ended September 30, 2020, respectively, for net proceeds of $6.4 million and $23.0 million, respectively, after deducting issuance costs. As of September 30, 2020, a total of $113.5 million of common stock remained available for sale under the 2019 Form S-3, $51.2 million of which remained available for sale under the ATM financing facility.

In October 2019, we entered into a credit and security agreement pursuant to which the lenders party thereto agreed to make term loans available to us for working capital and general business purposes, in a principal amount of up to $50.0 million, including a $10.0 million term loan which was funded at closing (October 30, 2019), with the ability to access the remaining $40.0 million in two additional tranches of $20.0 million, subject to specified availability periods, the achievement of certain clinical development milestones, minimum cash requirements and other customary conditions. During June 2020, the Company prepaid the outstanding $10.0 million balance on the term loan as well as $0.6 million for related prepayment and final payment fees. Additional information about this credit facility and our long-term debt is presented in Note 9 to the condensed consolidated financial statements included elsewhere in this report.

Our primary uses of cash are to fund operating expenses, primarily our research and development 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 believe, based on our current operating plan and expected expenditures, that our existing cash, cash equivalents and marketable securities and access to our debt facility will be sufficient to meet our anticipated operating

and capital expenditure requirements for at least the next 12 months from the date of this filing. We have based this estimate on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we currently expect. If our planned pre-clinical and clinical trials are successful, or our other product candidates enter clinical trials or advance beyond the discovery stage, we will need to raise additional capital as well as seek additional collaborative or other arrangements with corporate sources in order to further advance our product candidates towards potential regulatory approval. We will continue to require additional financing to advance our current product candidates through clinical development, to develop, acquire or in-license other potential product candidates and to fund operations for the foreseeable future. We will continue to seek funds through equity or debt financings, collaborative or other arrangements with corporate sources, or through other sources of financing, but such financing may not be available at terms acceptable to us, if at all. We anticipate that we will need to raise substantial additional capital, the requirements of which will depend on many factors, including:

- the progress, timing, scope, results and costs of our pre-clinical studies and clinical trials for our product candidates, including the ability to enroll patients in a timely manner for our clinical trials;
- the costs of and ability to obtain clinical and commercial supplies and any other product candidates we may identify and develop;
- our ability to successfully commercialize the product candidates we may identify and develop;
- the selling and marketing costs associated with our current product candidates and any other product candidates we may identify and develop, including the cost and timing of expanding our sales and marketing capabilities;
- the achievement of development, regulatory and sales milestones resulting in payments to us from Janssen under the Janssen License and Collaboration Agreement, and the timing of receipt of such payments, if any;
- the timing, receipt and amount of royalties under the Janssen License and Collaboration Agreement on worldwide net sales of PTG-200, including any second-generation compounds, upon regulatory approval or clearance, if any;
- the amount and timing of sales and other revenues from our current product candidates and any other product candidates we may identify and develop, including the sales price and the availability of adequate third-party reimbursement;
- the cash requirements of any future acquisitions or discovery of product candidates;
- additional costs or delays we may incur related to the ongoing COVID-19 pandemic;
- the time and cost necessary to respond to technological and market developments;
- the extent to which we may acquire or in-license other product candidates and technologies;
- costs necessary to attract, hire and retain qualified personnel;
- the costs of maintaining, expanding and protecting our intellectual property portfolio; and
- the costs of ongoing general and administrative activities to support the growth or our business.

Adequate additional funding may not be available to us on acceptable terms, or at all. Any failure to raise capital as and when needed could have a negative impact on our financial condition and on our ability to pursue our business plans and strategies. Further, our operating plans may change, and we may need additional funds to meet

operational needs and capital requirements for clinical trials and other research and development activities. If we do raise additional capital through public or private equity offerings or convertible debt securities, the ownership interest of our existing stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect our stockholders' rights. If we raise additional capital through debt financing, we may be subject to covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends. Because of the numerous risks and uncertainties associated with the development and commercialization of our product candidates, we are unable to estimate the amounts of increased capital outlays and operating expenditures associated with our current and anticipated product development programs.

The following table summarizes our cash flows for the periods indicated (in thousands):

	Nine Months Ended September 30,	
	2020	2019
	(In thousands)	
Cash used in operating activities	$ (53,617)	$ (27,238)
Cash used in investing activities	(16,563)	(41,156)
Cash provided by financing activities	120,645	36,257

Cash Flows from Operating Activities

Cash used in operating activities for the nine months ended September 30, 2020 was $53.6 million, consisting of our net loss of $47.3 million and a net change of $16.0 million in net operating assets, partially offset by $9.7 million in non-cash charges. Non-cash charges were primarily comprised of $5.9 million of stock-based compensation, a $1.4 million change in net deferred tax asset, $1.3 million of operating lease ROU asset amortization, a $0.6 million loss on early prepayment of long-term debt and $0.6 million of depreciation and amortization, partially offset by $0.2 million of net accretion of discount on marketable securities. The change in net operating assets and liabilities was primarily due to a decrease of $20.7 million in deferred revenue related to the Janssen License and Collaboration Agreement, a $1.6 million increase in prepaid expenses and other assets, a $1.5 million decrease in operating lease liability, and a $0.5 million increase in Australia research and development incentive receivable, partially offset by a decrease of $4.0 million in receivable from collaboration partner, an increase of $3.1 million in accrued expenses and other liabilities, an increase of $0.8 million in accrued expenses and other payables, and an increase of $0.2 million in other liability.

Cash used in operating activities for the nine months ended September 30, 2019 was $27.2 million, consisting of our net loss of $59.7 million, partially offset by a net change of $26.4 million in net operating assets and non-cash charges of $6.1 million. The change in net operating assets and liabilities was primarily due to a net increase of $30.5 million in deferred revenue related to the Janssen License and Collaboration Agreement, a decrease of $2.6 million in receivable from collaboration partner and a decrease of $1.2 million in research and development tax incentive receivable, net, partially offset by a decrease of $4.2 million in accounts payable, an increase of $1.6 million in prepaid expenses and other current assets, a decrease of $1.4 million in operating lease liability and a decrease of $0.8 million in accrued expenses and other payables. Noncash charges were primarily comprised of $6.2 million of stock-based compensation, $1.3 million of operating lease ROU asset amortization and $0.5 million of depreciation and amortization, partially offset by $1.5 million of deferred tax benefit and $0.4 million of net accretion of discount on available-for-sale securities.

Cash Flows from Investing Activities

Cash used in investing activities for the nine months ended September 30, 2020 was $16.6 million, consisting of purchases of marketable securities of $147.6 million and purchases of property and equipment of $0.3 million, partially offset by proceeds from maturities of marketable securities of $131.4 million.

Cash used in investing activities for the nine months ended September 30, 2019 was $41.2 million, consisting of purchases of available-for-sale securities of $117.8 million and purchases of property and equipment of $0.8 million, partially offset by proceeds from maturities of available for sale securities of $77.4 million

Cash Flows from Financing Activities

Cash provided by financing activities for the nine months ended September 30, 2020 was $120.6 million, consisting primarily of cash proceeds from our public offering of common stock of $105.5 million, cash proceeds from ATM sales of $23.2 million, and proceeds from the issuance of common stock upon exercise of stock options and purchases of common stock under our employee stock purchase plan of $2.5 million, partially offset by early repayment of long-term debt of $10.5 million.

Cash provided by financing activities for the nine months ended September 30, 2019 was $36.3 million, consisting of $34.5 million of net proceeds from the sale of common stock under our ATM financing facility and $1.8 million of proceeds from the issuance of common stock upon exercise of stock options and purchases of common stock under our employee stock purchase plan.

Contractual Obligations and Other Commitments

During the three and nine months ended September 30, 2020, with the exception of early repayment of debt during the three months ended June 30, 2020, there were no material changes to our contractual obligations and commitments described under *Management's Discussion and Analysis of Financial Condition and Results of Operations* in our Annual Report on Form 10-K for the year ended December 31, 2019 filed with the SEC on March 10, 2020.

Off-Balance Sheet Arrangements

We have not entered into any off-balance sheet arrangements, as defined under SEC rules, including the use of structured finance, special purpose entities or variable interest entities.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are exposed to market risks in the ordinary course of our business. These risks primarily include interest rate sensitivities related to our borrowings and investments.

We had $200.0 million and $133.0 million in cash, cash equivalents and marketable securities at September 30, 2020 and December 31, 2019, respectively. Cash and cash equivalents consist of cash, money market funds, commercial paper and government bonds. Marketable securities consist of corporate bonds, commercial paper and government bonds. A portion of our investments may be subject to interest rate risk and could fall in value if market interest rates increase. Based on our interest rate sensitivity analysis, an immediate 1% increase in interest rates would increase our interest income by approximately $1.5 million, while an immediate 1% decrease in interest rates would decrease our interest income by approximately $0.3 million.

Approximately $2.3 million and $0.6 million of our cash balance was located in Australia at September 30, 2020 and December 31, 2019, respectively. Our expenses, except those related to our Australian operations, are generally denominated in U.S. dollars. For our operations in Australia, the majority of the expenses are denominated in Australian dollars. To date, we have not had a formal hedging program with respect to foreign currency, but we may do so in the future if our exposure to foreign currency becomes more significant. A 10% increase or decrease in current exchange rates would not have a material effect on our results of operations.

ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

As required by Rule 13a-15(b) under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), our management, under the supervision and with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this Quarterly Report.

Any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objective and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

Based on the evaluation of our disclosure controls and procedures, our Chief Executive Officer and Chief Financial Officer have concluded that, as of the end of the period covered by this Quarterly Report, our disclosure controls and procedures were effective at the reasonable assurance level.

Changes in Internal Control over Financial Reporting

There have been no changes in our internal control over financial reporting that occurred during the quarter ended September 30, 2020 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

From time to time, we may become subject to litigation and claims arising in the ordinary course of business. We are not currently a party to any material legal proceedings and we are not aware of any pending or threatened legal proceeding against us that we believe could have a material adverse effect on our business, operating results or financial condition.

On January 23, 2020, we initiated arbitration proceedings with the International Court of Arbitration of the International Chamber of Commerce against Zealand Pharma A/S ("Zealand") related to a collaboration agreement we and Zealand entered into in 2012 and terminated in 2014. The agreement provides for certain post-termination payment obligations to Zealand with respect to compounds related to the collaboration that we elect to further develop and meet specified conditions. In our arbitration claim, we are seeking a declaration that we have no past, present or future milestone or royalty payment obligations under the agreement with respect to PTG-300 because PTG-300 is not a compound relating to the collaboration for which post-termination payments to Zealand apply. We are also seeking repayment of $1.0 million in milestone payments we have made, as well as our costs, fees, and expenses of the proceeding. Zealand disputes our claims and has filed counterclaims for payment of an additional $1.0 million future milestone, as well as payment of their arbitration costs, fees and expenses. The arbitration is pending. If Zealand prevails in the arbitration, we could be required to make contractual payments to Zealand described in our prior periodic reports filed with the Securities and Exchange Commission. Those payments could include milestone payments for the achievement of certain development, regulatory and sales milestone events, and a low single digit royalty on worldwide net sales of PTG-300.

ITEM 1A. RISK FACTORS

We have identified the following risks and uncertainties that may have a material adverse effect on our business, financial condition or results of operations. Investors should carefully consider the risks described below before making an investment decision. Our business faces significant risks and the risks described below may not be the only risks we face. Additional risks not presently known to us or that we currently believe are immaterial may also significantly impair our business operations. If any of these risks occur, our business, results of operations or financial condition could suffer, the market price of our common stock could decline and you could lose all or part of your investment in our common stock.

Risks Related to the COVID-19 Pandemic

The COVID-19 pandemic could adversely impact our business including our ongoing and planned clinical trials and preclinical and discovery research.

In December 2019, COVID-19 was reported to have surfaced in Wuhan, China. Since then, the virus has spread to numerous other countries, including the United States, resulting in the World Health Organization characterizing COVID-19 as a pandemic. The extent to which the COVID-19 pandemic impacts our business will continue to depend on future developments, which are highly uncertain and cannot be predicted, such as the ultimate geographic spread of the disease, the duration of the outbreak, the development of a vaccine or other treatments, travel restrictions and social distancing in the United States and other countries, business closures or business disruptions and the effectiveness of actions taken in the United States and other countries to contain, ameliorate the impact of and treat the disease and to address its impact, including on financial markets or otherwise. Countries and territories, including the United States, are in varying stages of restrictions and re-openings to address the COVID-19 pandemic. Certain jurisdictions have begun re-opening only to return to restrictions in the face of increases in new COVID-19 cases. As the COVID-19 pandemic continues, we could experience disruptions that could severely impact our business, current and planned clinical trials and preclinical and discovery research, including:

- delays or difficulties in enrolling patients in our ongoing clinical trials and our future clinical trials;
- delays or difficulties in clinical site initiation, including difficulties in recruiting clinical site investigators and clinical site staff;
- diversion of healthcare resources away from the conduct of clinical trials, including the diversion of hospitals serving as our clinical trial sites and hospital staff supporting the conduct of clinical trials;
- interruption of key clinical trial activities, such as clinical trial site monitoring, due to limitations on travel imposed or recommended by federal or state governments, employers and others or interruption of clinical trial subject visits and study procedures, which may impact the integrity of subject data and clinical study endpoints;
- limitations in resources, including our employees, that would otherwise be focused on the conduct of our business or our current or planned clinical trials or preclinical research, including because of sickness, the desire to avoid contact with large groups of people or restrictions on movement or access to our facility as a result of government-imposed "shelter in place" or similar working restrictions;
- interruptions or delays in the operations of the U.S. Food and Drug Administration ("FDA") or other regulatory authorities, which may impact review and approval timelines;
- delays in receiving the supplies, materials and services needed to conduct clinical trials and preclinical research;
- changes in regulations as part of a response to the COVID-19 pandemic which may require us to change the ways in which our clinical trials are conducted, which may result in unexpected costs or require us to discontinue the clinical trial altogether;
- interruptions or delays to our development pipeline; and
- delays in necessary interactions with regulators, ethics committees and other important agencies and contractors due to limitations in employee resources or furlough of government or contractor personnel.

In addition in March 2020, the health officers of six San Francisco Bay Area counties, including Alameda County where our headquarters are located, issued a "shelter-in-place" order, effective March 17, 2020, and on March

19, 2020, the Governor of California, the State Public Health Officer and Director of the California Department of Public Health, ordered all individuals in the State of California to stay home or at their place of residence except as needed to maintain continuity of operations of the federal critical infrastructure sectors. Following updated guidance issued by federal, state and local authorities, our laboratory facilities remain open for research activities that cannot be conducted remotely, with heightened safety measures designed to minimize occupational exposure and reduce transmission of COVID-19 within our workplace. As a result of such county and California state orders and subsequent updated guidance, our non-laboratory employees telecommute at least part-time, which may impact certain of our operations over the near term and long term. Although our laboratory facilities remain open on this basis under these heightened safety measures, we may be forced to, or determine that we should, resume a more restrictive remote work model, whether as a result of spikes or surges in COVID-19 infection, positivity or hospitalization rates or otherwise. These and similar, and perhaps more severe, disruptions in our operations could negatively impact our business, operating results and financial condition.

Further, as a result of the COVID-19 pandemic, the extent and length of which is uncertain, we may be required to develop and implement additional clinical study policies and procedures designed to help protect study participants from the COVID-19 virus, which may include using telemedicine visits, remote monitoring of patients and clinical sites, and measures to ensure that data from clinical studies that may be disrupted as result of the pandemic are collected pursuant to the study protocol and consistent with good clinical practices (GCPs), with any material protocol deviation reviewed and approved by the site Institutional Review Board (IRB). Patients who may miss scheduled appointments, any interruption in study drug supply, or other consequence that may result in incomplete data being generated during a study as a result of the pandemic must be adequately documented and justified. For example, on March 18, 2020, the FDA issued a guidance on conducting clinical trials during the pandemic, which describe a number of considerations for sponsors of clinical trials impacted by the pandemic, including the requirement to include in the clinical study report (or as a separate document) contingency measures implemented to manage the study, and any disruption of the study as a result of the COVID-19 pandemic; a list of all study participants affected by the COVID-19-pandemic related study disruption by unique subject identifier and by investigational site, and a description of how the individual's participation was altered; and analyses and corresponding discussions that address the impact of implemented contingency measures (e.g., participant discontinuation from investigational product and/or study, alternative procedures used to collect critical safety and/or efficacy data) on the safety and efficacy results reported for the study.

While the extent of the impact of the COVID-19 pandemic on our business and financial results is uncertain, a continued and prolonged public health crisis such as the COVID-19 pandemic could have a material negative impact on our business, financial condition, and operating results.

Risks Related to Clinical Development

We are an early clinical-stage biopharmaceutical company with no approved products and no historical product revenue, which makes it difficult to assess our future prospects and financial results.

We are an early clinical-stage biopharmaceutical company with a limited operating history. Biopharmaceutical product development is a highly speculative undertaking and involves a substantial degree of uncertainty. Our operations to date have been limited to developing our technology, undertaking pre-clinical studies and early stage clinical trials of our pipeline candidates and conducting research to identify additional product candidates. We have not yet demonstrated an ability to generate product revenue or successfully overcome many of the risks and uncertainties frequently encountered by companies in new and rapidly evolving fields such as biopharmaceutical drug discovery and development. Consequently, the ability to accurately assess our future operating results or business prospects is significantly more limited than if we had a longer operating history or approved products on the market.

We expect that our financial condition and operating results will fluctuate significantly from period to period due to a variety of factors, many of which are beyond our control, including, but not limited to:

- the clinical outcomes from the continued development of our product candidates;

- our ability to obtain, as well as the timeliness of obtaining, additional funding to develop and potentially manufacture and commercialize our product candidates, including payments, if any, under our collaboration agreements;
- competition from existing products as well as new products that may receive marketing approval;
- the entry of generic or biosimilar versions of products that compete with our product candidates;
- the timing of regulatory review and approval of our product candidates;
- market acceptance of our product candidates that receive regulatory approval, if any;
- the ability of patients or healthcare providers to obtain coverage or sufficient reimbursement for our products;
- the ability of third party manufacturers to manufacture in accordance with current good manufacturing practices ("cGMP") our product candidates, conduct clinical trials with good clinical practices GCP and, if approved, for successful commercialization;
- our ability to maintain, expand and protect our intellectual property portfolio;
- our ability to attract and retain key personnel with appropriate expertise and experience to manage our business effectively; and
- the extent to which the COVID-19 pandemic impacts the factors outlined above.

Accordingly, the likelihood of our success must be evaluated in light of many potential challenges and variables associated with an early clinical-stage biopharmaceutical company, many of which are outside of our control, and past results, including operating or financial results, should not be relied on as an indication of future results.

We are heavily dependent on the success of our product candidates in early-stage clinical development, and if any of these products fail to receive regulatory approval or are not successfully commercialized, our business would be adversely affected.

We currently have no product candidates that are in registrational or pivotal clinical trials or are approved for commercial sale, and we may never develop a marketable product. We expect that a substantial portion of our efforts and expenditures over the next few years will be devoted to our current product candidates and the development of other product candidates. We cannot be certain that our product candidates will receive regulatory approval or, if approved, be successfully commercialized. The research, testing, manufacturing, labeling, approval, sale, marketing and distribution of our product candidates will remain subject to extensive regulation by the FDA and other regulatory authorities in the United States and other countries. In addition, even if approved, our pricing and reimbursement will be subject to further review and discussions with payors. We are not permitted to market any product candidate in the United States until after approval of a new drug application ("NDA") from the FDA, or in any foreign countries until approval by corresponding regulatory authorities. We will need to conduct larger, more extensive clinical trials in the target patient populations to support a potential application for regulatory approval by the FDA or corresponding regulatory authorities, and we do not expect to be in a position to do so for the near term. We may not receive any preferential or expedited review of any application for regulatory approval by virtue of the fact that our product candidates target biological pathways that are also targeted by currently marketed injectable antibody drugs, and our product candidates will be subject to the regulatory review processes applicable to completely new drugs.

We have not previously submitted an NDA to the FDA, or similar drug approval filings to comparable foreign authorities, for any product candidate, and we cannot be certain that any of our product candidates will be successful in clinical trial or receive regulatory approval. Filing an application and obtaining regulatory approval for a

pharmaceutical product candidate is an extensive, lengthy, expensive and inherently uncertain process, and the regulatory authorities may delay, limit or deny approval of our product candidates for many reasons, including:

- we may not be able to demonstrate that any of our product candidates are safe and effective to the satisfaction of the FDA or comparable foreign regulatory authorities;
- the FDA or comparable foreign regulatory authorities may require additional pre-clinical studies or clinical trials prior to granting approval, which would increase our costs and extend the pre-approval development process;
- the results of our clinical trials may not meet the level of statistical or clinical significance required by the FDA or comparable foreign regulatory authorities for approval;
- the FDA may disagree with the number, design, size, conduct or statistical analysis of one or more of our clinical trials;
- any Fast Track designation we receive may not lead to faster development or approval, and such designation may be revoked if we no longer meet the criteria for designation;
- contract research organizations ("CROs") that we retain to conduct clinical trials may take actions outside of our control that materially and adversely impact our clinical trials;
- the FDA or comparable foreign regulatory authorities may disagree with, or not accept, our interpretation of data from our pre-clinical studies and clinical trials;
- the FDA may require development of a costly and extensive risk evaluation and mitigation strategy ("REMS"), as a condition of approval;
- the FDA or other regulatory authorities may require post-marketing studies as a condition of approval;
- the FDA may identify deficiencies in our manufacturing processes or facilities or those of our third-party manufacturers which would be required to be corrected prior to regulatory approval; and
- the success or further approval of competitor products approved in indications in which we undertake development of our product candidates may change the standard of care or change the standard for approval of our product candidate in our proposed indications.

Our product candidates will require additional research, clinical development, manufacturing activities, regulatory approval in multiple jurisdictions, securing sources of commercial manufacturing supply and partnering with a commercial organization. We cannot assure you that our clinical trials for our product candidates will be initiated or completed in a timely manner or successfully, or at all. Further we cannot be certain that we plan to advance any other peptide-based product candidates into clinical trials. Moreover, any delay or setback in the development of any product candidate would be expected to adversely affect our business and cause our stock price to fall. For example, the announcement of the premature discontinuation of the global Phase 2 clinical trial of PTG-100 for the treatment of moderate-to-severe UC in March 2018 due to the interim analysis meeting futility criteria on the primary endpoint of clinical remission (that was subsequently confirmed to be due to human error in endoscopy reads by the original vendor) significantly depressed our stock price.

Clinical development is a lengthy and expensive process with an uncertain outcome, and results of earlier studies and trials may not be predictive of future trial results. Clinical failure can occur at any stage of clinical development.

Clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. Failure can occur at any time during the clinical development process. The results of pre-clinical studies and early

clinical trials of our product candidates and studies and trials of other products may not be predictive of the results of later-stage clinical trials. Any hypothesis formed from pre-clinical or early clinical observations for any of our product candidates may prove to be incorrect, and the data generated in animal models or observed in limited patient populations may be of limited value, and may not be applicable in clinical trials conducted under the controlled conditions required by applicable regulatory requirements.

In addition to our planned pre-clinical studies and clinical trials, we expect to have to complete at least two large scale, well-controlled clinical trials to demonstrate substantial evidence of efficacy and safety for each product candidate we intend to commercialize. Further, given the patient populations for which we are developing therapeutics, we expect to have to evaluate long-term exposure to establish the safety of our therapeutics in a chronic dose setting. We have never conducted a Phase 3 clinical trial or submitted an NDA, and as a result, we have no history or track record to rely on when entering these phases of the development cycle. Product candidates in later stages of clinical trials may fail to show the desired safety and efficacy traits despite having progressed through pre-clinical studies and initial clinical trials. Clinical trial failures may result from a multitude of factors including, but not limited to, flaws in trial design, dose selection, placebo effect, patient enrollment criteria and failure to demonstrate favorable safety and/or efficacy traits of the product candidate. Based upon negative or inconclusive results, we may decide, or regulators may require us, to conduct additional clinical trials or pre-clinical studies.

We may experience delays in ongoing clinical trials, and we do not know whether planned clinical trials will begin on time, need to be redesigned, enroll patients on time or be completed on schedule, if at all. Clinical trials can be delayed for a variety of reasons, including delays related to:

- the COVID-19 pandemic;
- obtaining regulatory approvals to commence a clinical trial;
- reaching agreement on acceptable terms with prospective 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;
- fraud or negligence on the part of CROs, contract manufacturing organizations (“CMOs”), consultants or contractors;
- obtaining IRB or ethics committee (“EC”), approval at each site;
- recruiting and retaining suitable patients to participate in a clinical trial;
- having patients complete a clinical trial or return for post-treatment follow-up;
- clinical sites deviating from the clinical trial protocol or dropping out of a clinical trial;
- adding new clinical trial sites; or
- manufacturing sufficient quantities of product candidate for use in clinical trials.

We could encounter delays if a clinical trial is modified, suspended or terminated by us, by the IRBs or ECs of the institutions in which such clinical trials are being conducted, by a Data Safety Monitoring Board, for such trial or by the FDA or other regulatory authorities. Such authorities may impose a modification, suspension or termination due to a number of factors. In addition, there are a significant number of global clinical trials in IBD and in hematologic disorders that are currently ongoing, especially in Phases 2 and 3, making it highly competitive and challenging to recruit subjects. Furthermore, any negative results we may report in clinical trials of our product candidates, such as the premature termination of our Phase 2 clinical trial of PTG-100 for the treatment of moderate-to-severe UC, may make it difficult or impossible to recruit and retain patients in other clinical trials of that same product candidate. Delays or failures in planned patient enrollment or retention may result in increased costs, program delays or both.

If we experience delays in the completion of, or termination of, any clinical trial of our product candidates, the commercial prospects of our product candidates will be harmed and our ability to generate product revenue from any of these product candidates will be delayed. In addition, any delays in completing our clinical trials will increase our costs, slow down our product candidate development and approval process and jeopardize our ability to commence product sales and generate revenue. Any of these occurrences may harm our business, financial condition and prospects significantly.

In addition, data obtained from trials and studies are susceptible to varying interpretations, and regulators may not interpret our data as favorably as we do, which may delay, limit or prevent regulatory approval.

All of our peptide-based product candidates other than PTG-300, PTG-200 and PN-943 are in research or pre-clinical development and have not entered into clinical trials. If we are unable to develop, test and commercialize our peptide-based product candidates, our business will be adversely affected.

As part of our strategy, we seek to discover, develop and commercialize a portfolio of new peptide-based product candidates in addition to PTG-300, PTG-200, and PN-943. Research programs to identify appropriate biological targets pathways and product candidates require substantial scientific, technical, financial and human resources, whether or not any product candidates are ultimately identified. Our research programs may initially show promise in identifying potential product candidates, yet fail to yield product candidates for clinical development for many reasons.

Our proprietary peptide platform may not result in any products of commercial value.

We have developed a proprietary peptide technology platform to enable the identification, testing, design and development of new product candidates. We cannot assure you that our peptide platform will work, nor that any of these potential targets or other aspects of our proprietary drug discovery and design platform will yield product candidates that could enter clinical development and, ultimately, be commercially valuable. Although we expect to continue to enhance the capabilities of our proprietary platform by developing and integrating existing and new research technologies, we may not be successful in any of our enhancement and development efforts. If our enhancement or development efforts are unsuccessful, we may not be able to advance our drug discovery capabilities as quickly as we expect or identify as many potential drug candidates as we desire.

Our product candidates may cause undesirable side effects or have other properties impacting safety that could delay or prevent their regulatory approval, limit the commercial profile of an approved label, or result in limiting the commercial opportunity for our product candidates if approved.

Undesirable side effects that may be caused by our product candidates or caused by similar approved drugs or product candidates in development by other companies, could cause us, an independent data monitoring committee or regulatory authorities to interrupt, delay or halt clinical trials and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA or other comparable foreign authorities. Results of our clinical trials could reveal a high and unacceptable severity and prevalence of side effects or adverse events related to our product candidates. In such an event, our clinical trials could be suspended or terminated and the FDA or comparable foreign regulatory authorities could order us to cease further development of our product candidates for any or all targeted indications. In addition, drug-related side effects could negatively affect patient recruitment or the ability of enrolled patients to complete the trial and even if our clinical trials are completed and our product candidate is approved, drug-related side effects could restrict the label or result in potential product liability claims. Any of these occurrences could significantly harm our business, financial condition and prospects significantly.

Moreover, since our product candidates PTG-200 and PN-943 have been developed for indications for which injectable antibody drugs have been approved, we expect that our clinical trials would need to show a risk/benefit profile that is competitive with those existing products and product candidates in order to obtain regulatory approval or, if approved, a product label that is favorable for commercialization.

We have focused our limited resources to pursue particular product candidates and indications, and consequently, we may 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 have focused on research programs and product candidates mainly on the development of PTG-300 for treatment of certain rare blood disorders and the discovery and development of PTG-200, including any second-generation compounds, and PN-943, GI-restricted drugs that target the same biological pathways as currently marketed injectable antibody drugs for the treatment of IBD. 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. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that product candidate through collaboration partnerships, 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.

Risks Related to Our Financial Position and Capital Requirements

We have incurred significant 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 have incurred significant operating losses since our inception. Our net loss for the three months and nine months ended September 30, 2020 was $7.8 million and $47.3 million, respectively. Our net loss for the three and nine months ended September 30, 2019 was $16.4 million and $59.7 million, respectively. As of September 30, 2020, we had an accumulated deficit of $264.9 million. 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. We expect to continue to incur significant research, development and other expenses related to our ongoing operations and product development, including clinical development activities under the Janssen License and Collaboration Agreement, and as a result, we expect to continue to incur losses in the future as we continue our development of, and seek regulatory approvals for, our peptide-based product candidates.

We do not anticipate generating revenue from sales of products for the foreseeable future, if ever, and we do not currently have any product candidates in registration or pivotal clinical trials. If any of our peptide-based product candidates fail in clinical trials or do not gain regulatory approval, or even if approved, fail to achieve market acceptance, we may never become profitable. Furthermore, any revenues generated from the Janssen License and Collaboration Agreement may not be sufficient alone to sustain our operations as there can be no assurance that we will receive any opt-in election fees, development, regulatory, or sales milestone payments, or royalties from Janssen in the future pursuant to the Janssen License and Collaboration Agreement. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Failure to become and remain profitable may adversely affect the market price of our common stock and our ability to raise capital and continue operations.

If one or more of our peptide-based product candidates is approved for commercial sale and we retain commercial rights, we anticipate incurring significant costs associated with manufacturing and commercializing such approved peptide-based product candidate. Therefore, even if we are able to generate revenue from the sale of any approved product, we may never become profitable.

We will require substantial additional funding, which may not be available to us on acceptable terms, or at all.

Our operations have consumed substantial amounts of cash since inception. Developing pharmaceutical product candidates, including conducting pre-clinical studies and clinical trials, is expensive. We will require substantial additional future capital in order to complete clinical development and, if we are successful, to commercialize any of our current product candidates. If the FDA or any foreign regulatory agency, such as the European Medicines Agency ("EMA"), requires that we perform studies or trials in addition to those that we currently anticipate with respect to the development of any of our product candidates, or repeat studies or trials, our expenses

would further increase beyond what we currently expect, and any delay resulting from such further or repeat studies or trials could also result in the need for additional financing. Further, in the event our Janssen License and Collaboration Agreement is terminated, we may not receive any development fees, milestone payments, or royalties under the Janssen License and Collaboration Agreement, and we would be required to fund all clinical development, manufacturing, and commercial activities for PTG-200 and any second-generation compounds, which would require us to raise additional capital or establish alternative collaborations with third-party collaboration partners, which may not be possible.

As of September 30, 2020, we had cash, cash equivalents and marketable securities of $200.0 million. Based upon our current operating plan and expected expenditures, we believe that our existing cash, cash equivalents, and marketable securities and proceeds from our debt facility will be sufficient to fund our operations for at least the next 12 months. However, we expect that we will need to raise substantial additional funds in the future in order to complete clinical development or commercialize any of our product candidates. Our funding requirements and the timing of our need for additional capital are subject to change based on a number of factors, including:

- the scope, progress, results and costs of drug discovery, clinical development, laboratory testing and clinical trials for our product candidates;
- the number of product candidates that we intend to develop using our technology platform;
- the costs, timing and outcome of any regulatory review of our product candidates;
- the timing and achievement of development, regulatory, and sales milestones resulting in the payment to us from Janssen under the Janssen License and Collaboration Agreement and the timing of receipt of such payments, if any;
- the costs and timing of commercialization activities, including manufacturing, marketing, sales and distribution for any product candidates that receive marketing approval;
- Janssen's ability to successfully market and sell PTG-200 and any second-generation compounds upon regulatory approval and clearance, in the United States and other countries;
- the degree and rate of market acceptance of any products launched by us or our partners;
- the costs of filing, prosecuting, defending and enforcing any patent claims and other intellectual property rights;
- our need and ability to hire and retain existing and additional personnel;
- our ability to establish and maintain collaborations on favorable terms, if at all, and the payment and achievement of the fees, milestone payments and royalties under those collaborations, including the Janssen License and Collaboration Agreement; and
- the emergence of competing technologies or other adverse market developments.

Raising additional capital may cause dilution to our existing stockholders, restrict our operations or require us to relinquish rights to our peptide-based product candidates or technologies.

We may seek additional funding through a combination of equity offerings, debt financings, collaborations and/or licensing arrangements. Additional funding may not be available to us on acceptable terms, or at all. Our ability to raise additional capital may be adversely impacted by potential worsening economic conditions and the recent disruptions to and volatility in the credit and financial markets in the United States and worldwide resulting from the ongoing COVID-19 pandemic. The incurrence of indebtedness and/or the issuance of certain equity securities could result in fixed payment obligations and could also result in certain additional restrictive covenants, such as limitations

on our ability to incur debt and/or issue additional equity, limitations on our ability to acquire or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. In addition, the issuance of additional equity securities by us, or the possibility of such issuance, may cause the market price of our common stock to decline. In the event that we enter into collaborations and/or licensing arrangements in order to raise capital, we may be required to accept unfavorable terms, including relinquishing or licensing to a third party on unfavorable terms our rights to our proprietary technology platform or peptide-based product candidates that we otherwise would seek to develop or commercialize ourselves or potentially reserve for future potential arrangements when we might be able to achieve more favorable terms. To the extent that we raise additional capital through the sale of equity securities, including sales of common stock pursuant to our sales agreement with Jefferies LLC (the "Sales Agreement"), your ownership interest will be diluted, and the terms may include liquidation or other preferences that adversely affect your rights as a stockholder. If we issue common stock or securities convertible into common stock, our common stockholders would experience additional dilution and, as a result, our stock price may decline.

Covenants in our credit and security agreement restrict our business and operations in many ways and if we do not effectively manage our covenants, our financial conditions and results of operations could be adversely affected.

In October 2019, we entered into a credit and security agreement (the "Credit Agreement") pursuant to which $40.0 million remains available, subject to specified availability periods and the satisfaction of certain conditions. All of our assets, except for intellectual property and certain other customary excluded property, are security for our borrowings under the Credit Agreement. The Credit Agreement contains customary affirmative and negative covenants, including, among other things, restrictions on indebtedness, liens, investments, mergers, dispositions, prepayment of other indebtedness and dividends and other distributions, any of which could restrict our business and operations, particularly our ability to respond to changes in our business or to take specified actions to take advantage of certain business opportunities that may be presented to us.

Our failure to comply with any of the covenants could result in a default under the Credit Agreement, which would permit the lenders to declare all or part of any outstanding borrowings to be immediately due and payable, or to refuse to permit additional borrowings under the loan and security agreement. If we are unable to repay those amounts, the lenders under the Credit Agreement could proceed against the collateral granted to them to secure that debt, which would seriously harm our business. In addition, before we borrow additional funds under the Credit Agreement, we must first satisfy ourselves that we will have access to existing and future alternate sources of capital, including cash flow from our own operations, equity capital markets or debt capital markets in order to repay any principal borrowed, which we may be unable to do, in which case, our liquidity and ability to fund our operations may be substantially impaired.

Risks Related to Our Reliance on Third Parties

If Janssen does not elect to continue the development of PTG-200 or any second-generation compounds, our business and business prospects would be significantly harmed.

Under the terms of the Janssen License and Collaboration Agreement, Janssen may terminate the Janssen License and Collaboration Agreement for convenience and without cause on written notice of a certain period. In addition, Janssen will generally retain control over the further clinical development of PTG-200 and the clinical development of second-generation compounds. Janssen's decisions with respect to such development will affect the timing and availability of potential future opt-in, milestone and royalty payments, if any. If the research program or the Janssen License and Collaboration Agreement are terminated early, or if Janssen's development activities are terminated early or suspended for an extended period of time, or are otherwise unsuccessful, our business and business prospects would be materially adversely affected.

If there are any safety or efficacy results that cause the benefit-risk profile of PTG-200 or any second-generation compounds to become unacceptable, clinical development would be delayed or halted, and as a result, Janssen may terminate the Janssen License and Collaboration Agreement, which would severely and adversely affect our business prospects, and may cause us to cease operations.

PTG-200 or any second-generation compounds may prove to have undesirable or unintended side effects or other characteristics adversely affecting its safety, efficacy or cost effectiveness that could prevent or limit its approval for marketing and successful commercial use, or that could delay or prevent the commencement and/or completion of clinical trials. If regulatory submissions requesting approval to market PTG-200 or any such second-generation compounds are submitted, after reviewing the data in such submissions, the FDA and regulatory agencies in other countries may conclude that the overall benefit-risk profile of treatment is unacceptable, and clinical development would be delayed or halted. Any of these events would severely harm our business and prospects.

Clinical trials by their nature examine the effects of a potential therapy in a sample of the potential future patient population. As such, clinical trials conducted with PTG-200 or any second-generation compounds may not uncover all possible adverse events that patients may experience. We or Janssen may in the future observe or report dose-limiting or other safety issues in potential future clinical trials.

The occurrence of these events may cause Janssen to abandon its development of PTG-200 or any second-generation compounds entirely and terminate the Janssen License and Collaboration Agreement. Any termination of the Janssen License and Collaboration Agreement by Janssen would have a material adverse effect on our results of operations, financial condition, business prospects and the future of PTG-200 and any second-generation compounds.

There may be disagreements between Janssen and Protagonist during the term of the Janssen License and Collaboration Agreement, and if they are not settled amicably or in the favor of Protagonist, the result may harm our business.

We are subject to the risk of possible disagreements with Janssen, including those regarding the development, manufacture, and commercialization of PTG-200 or any second-generation compounds, interpretation of the Janssen License and Collaboration Agreement, and ownership of proprietary rights. In addition, in certain circumstances, we may believe that a particular milestone has been achieved and Janssen may disagree with our belief. In that case, receipt of that milestone payment may be delayed or may never be received, which would adversely affect our financial condition and may require us to adjust our operating plans. The joint governance structure contemplated by the Janssen License and Collaboration Agreement will cease to have decision-making authority once the development term ends, which will preclude our ability to participate in any further decision-making for PTG-200 and any second-generation compounds. As a result of possible disagreements with Janssen, we also may become involved in litigation or arbitration, which would be time-consuming for our management and employees and expensive.

We may not be successful in obtaining or maintaining development and commercialization collaborations, any collaboration arrangements we enter into in the future may not be successful, and any potential partner 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 certain of our product candidates and our financial condition and operating results.

Other than our Janssen License and Collaboration Agreement, we have no active collaborations for any of our product candidates. Even if we are able to establish other collaboration arrangements, any such collaboration may not ultimately be successful, which could have a negative impact on our business, results of operations, financial condition and growth prospects. While we currently plan to enter into collaborations that are limited to certain identified territories, there can be no assurance that we would maintain significant rights or control of future development and commercialization of such product candidate. Accordingly, if we collaborate with a third party for development and commercialization of a product candidate, we may relinquish some or all of the control over the future success of that product candidate to the third party, and that partner may not devote sufficient resources to the development or commercialization of our product candidate or may otherwise fail in development or commercialization efforts, in which event the development and commercialization of the product candidate in the collaboration could be delayed or

terminated and our business could be substantially harmed. In some cases, we may be responsible for continuing development of a product candidate or research program under a collaboration, and the payments we receive from our partner may be insufficient to cover the cost of this development or may result in a dispute between the parties. Moreover, collaborations and sales and marketing arrangements are complex and time consuming to negotiate, document and implement, and they may require substantial resources to maintain, which may be detrimental to the development of our other product candidates.

We are subject to a number of additional risks associated with our dependence on collaborations with third parties, the occurrence of which could cause our collaboration arrangements to fail. Conflicts may arise between us and partners, such as conflicts concerning the implementation of development plans, efforts and resources dedicated to the product candidate, interpretation of clinical data, the achievement of milestones, the interpretation of financial provisions or the ownership of intellectual property developed during the collaboration. Any such disagreement between us and a partner could result in one or more of the following, each of which could delay or prevent the development or commercialization of our product candidates, and in turn prevent us from generating sufficient revenue to achieve or maintain profitability:

- reductions in the payment of royalties or other payments we believe are due pursuant to the applicable collaboration arrangement;
- actions taken by a partner inside or outside our collaboration which could negatively impact our rights or benefits under our collaboration; or
- unwillingness on the part of a partner to keep us informed regarding the progress of its development and commercialization activities or to permit public disclosure of the results of those activities.

Any future collaborations that we enter into may not be successful. The success of our collaboration arrangements will depend heavily on the efforts and activities of our collaborators. Collaborations are subject to numerous risks, which may include that:

- collaborators have significant discretion in determining the efforts and resources that they will apply to collaborations;
- 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 their strategic focus due to the acquisition of competitive products, availability of funding or other external factors;
- collaborators may delay clinical trials, provide insufficient funding for 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;
- we could grant exclusive rights to our collaborators that would prevent us from collaborating with others;
- collaborators may not properly maintain or defend our intellectual property rights or may use our intellectual property or proprietary information in a way that gives rise to actual or threatened litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential liability;
- disputes may arise between us and a collaborator that causes the delay or termination of the research, development or commercialization of our current or future products or that results in costly litigation or

arbitration that diverts management attention and resources, for example, we have filed a demand for arbitration against Zealand Pharma A/S in the International Court of Arbitration of the International Chamber of Commerce based, in part, on a dispute related to the termination of a collaboration agreement;

- collaborations may be terminated, and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable current or future products; and

- a collaborator's sales and marketing activities or other operations may not be in compliance with applicable laws resulting in civil or criminal proceedings.

We rely on third parties to conduct our pre-clinical studies and clinical trials. If these third parties do not successfully carry out their contractual duties or do not meet regulatory requirements or expected deadlines, we may not be able to obtain timely regulatory approval for or commercialize our product candidates and our business could be substantially harmed.

We have relied upon and plan to continue to rely upon third party CROs to monitor and manage clinical trials and collect data for our pre-clinical studies and clinical programs. We rely on these parties for execution of our pre-clinical studies and clinical trials, and control only certain aspects of their activities. Nevertheless, we are responsible for ensuring that their conduct meets regulatory requirements and that each of our studies and trials is conducted in accordance with the applicable protocol, legal, regulatory and scientific standards, and our reliance on CROs does not relieve us of our regulatory responsibilities. Thus, we and our CROs are required to comply with good clinical practices ("GCPs"), which are regulations and guidelines promulgated by the FDA, the EMA and comparable foreign regulatory authorities for all of our product candidates in clinical development. Regulatory authorities enforce these GCPs through periodic inspections of trial sponsors, principal investigators and trial sites. If we or any of our CROs fail to comply with applicable GCPs, the clinical data generated in our clinical trials may be deemed unreliable and the FDA, EMA or comparable foreign regulatory authorities may not accept the data or require us to perform additional clinical trials before considering our filing for regulatory approval or approving our marketing application. We cannot assure you that upon inspection by a regulatory authority, such regulatory authority will determine that any of our clinical trials complies with GCPs. While we have agreements governing activities of our CROs, we may have limited influence over their actual performance and the qualifications of their personnel conducting work on our behalf. In addition, significant portions of the clinical studies for our peptide-based product candidates are expected to be conducted outside of the United States, which will make it more difficult for us to monitor CROs and perform visits of our clinical trial sites and will force us to rely heavily on CROs to ensure the proper and timely conduct of our clinical trials and compliance with applicable regulations, including GCPs. Failure to comply with applicable regulations in the conduct of the clinical studies for our peptide-based product candidates may require us to repeat clinical trials, which would delay the regulatory approval process.

If any of our relationships with these third party CROs terminate, we may not be able to enter into arrangements with alternative CROs or do so on commercially reasonable terms. In addition, our CROs are not our employees, and except for remedies available to us under our agreements with such CROs, we cannot control whether or not they devote sufficient time and resources to our pre-clinical and clinical programs. If CROs do not successfully carry out their contractual duties or obligations or meet expected deadlines, if they need to be replaced or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our clinical protocols, regulatory requirements or for other reasons, our clinical trials may be extended, delayed or terminated and we may not be able to obtain regulatory approval for or successfully commercialize our peptide-based product candidates. As a result, our results of operations and the commercial prospects for our peptide-based product candidates would be harmed, our costs could increase substantially and our ability to generate revenue could be delayed significantly.

Switching or adding additional CROs involves additional cost and requires management time and focus. In addition, there is a natural transition period when a new CRO commences work. As a result, delays occur, which can materially impact our ability to meet our desired clinical development timelines. There can be no assurance that we will not encounter challenges or delays in the future or that these delays or challenges will not have a material adverse impact on our business, financial condition and prospects.

Third party CRO's ability to monitor and manage clinical trials and collect data for our pre-clinical studies and clinical programs may be further adversely impacted by the COVID-19 pandemic.

We face a variety of manufacturing risks and rely on third parties to manufacture our drug substance and clinical drug product and we intend to rely on third parties to produce commercial supplies of any approved peptide-based product candidate.

Our clinical trials must be conducted with product manufactured under cGMP and for Europe and other major regions, International Council for Harmonisation of Technical Requirements for Registration of Pharmaceuticals for Human Use ("ICH") guidelines, and we rely on contract manufacturers to manufacture and provide product for us that meet these requirements. We do not currently have nor do we plan to acquire the infrastructure or capability internally to manufacture our pre-clinical and clinical drug supplies and we lack the resources and the capability to manufacture any of our peptide-based product candidates on a clinical or commercial scale. We expect to continue to depend on contract manufacturers for the foreseeable future. As we proceed with the development and potential commercialization of our product candidates, we will need to increase the scale at which the drug is manufactured which will require the development of new manufacturing processes to potentially reduce the cost of goods. We will rely on our internal process research and development efforts and those of contract manufacturers to develop the GMP manufacturing processes required for cost-effective and large scale production. If these efforts are not successful in developing cost-effective processes and if the contract manufacturers are not successful in converting it to commercial scale manufacturing, then our development and/or commercialization of our product candidates could be materially adversely affected. Moreover, our contract manufacturers are the sole source of supply for our clinical product candidates. If we were to experience an unexpected loss of supply for any reason, whether as a result of manufacturing, supply or storage issues, natural disasters, pandemics or otherwise, we could experience delays, disruptions, suspensions or termination of our clinical study and planned development program, or be required to restart or repeat, any ongoing clinical trials.

We also rely on our contract manufacturers to purchase from third party suppliers the materials necessary to produce our peptide-based product candidates for our clinical trials. There are a limited number of suppliers for raw materials that we use to manufacture our drugs and there may be a need to assess alternate suppliers to prevent a possible disruption of the manufacture of the materials necessary to produce our peptide-based product candidates for our clinical trials, and if approved, for commercial sale. We do not have any control over the process or timing of the acquisition of these raw materials by our manufacturers. Moreover, we currently do not have any agreements for the commercial production of these raw materials. Although we generally do not begin a clinical trial unless we believe we have a sufficient supply of a peptide-based product candidate to complete the clinical trial, any significant delay in the supply of a peptide-based product candidate, or the raw material components thereof, for an ongoing clinical trial due to the need to replace a contract manufacturer or other third party manufacturer could considerably delay completion of our clinical trials, product testing and potential regulatory approval of our peptide-based product candidates. If our contract manufacturers or we are unable to purchase these raw materials after regulatory approval has been obtained for our peptide-based product candidates, the commercial launch of our peptide-based product candidates would be delayed or there would be a shortage in supply, which would impair our ability to generate revenue from the sale of our peptide-based product candidates.

If we submit an application for regulatory approval of any of our product candidates, the facilities used by our contract manufacturers to manufacture our product candidates will be subject to inspection and approval by the FDA or other regulatory authorities. If the FDA or a comparable foreign regulatory authority does not approve these facilities for the manufacture of our peptide-based product candidates or if it withdraws any such approval in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for or market our peptide-based product candidates, if approved.

Risks Related to Regulatory Approval

The regulatory approval processes of the FDA and comparable foreign authorities are lengthy, time consuming and inherently unpredictable, and if we are ultimately unable to obtain regulatory approval for our product candidates, our business will be substantially harmed.

Our business and future profitability is substantially dependent on our ability to successfully develop, obtain regulatory approval for and then successfully commercialize our peptide-based product candidates. We are not permitted to market or promote any of our peptide-based product candidates before we receive regulatory approval from the FDA, the EMA or any other foreign regulatory authority, and we may never receive such regulatory approval for any of our peptide-based product candidates. The time required to obtain approval by the FDA and comparable foreign authorities is unpredictable, typically takes many years following the commencement of clinical trials and depends upon numerous factors. Approval policies, regulations and the types and amount of clinical and manufacturing data necessary to gain approval may change during the course of clinical development and may vary among jurisdictions. We have not obtained regulatory approval for any product candidate and it is possible that none of our existing product candidates or any product candidates we have in development or may seek to develop in the future will ever obtain regulatory approval.

Our product candidates could fail to receive regulatory approval for many reasons, including the following:

- the FDA or comparable foreign regulatory authorities may disagree with the design or implementation of our clinical trials;
- we may be unable to demonstrate to the satisfaction of the FDA or comparable foreign regulatory authorities that a product candidate is safe and effective for its proposed indication;
- the results of clinical trials may fail to achieve the level of statistical significance required by the FDA or comparable foreign regulatory authorities for approval;
- we may be unable to demonstrate that a product candidate's clinical and other benefits outweigh its safety risks;
- the FDA or comparable foreign regulatory authorities may disagree with our interpretation of data submitted in support of regulatory approval;
- the data collected from pre-clinical studies and clinical trials of our peptide-based product candidates may not be sufficient to support the submission of an NDA, supplemental NDA, or other regulatory submissions necessary to obtain regulatory approval;
- we or our contractors may not meet the GMP and other applicable requirements for manufacturing processes, procedures, documentation and facilities necessary for approval by the FDA or comparable foreign regulatory authorities; and
- changes to the approval policies or regulations of the FDA or comparable foreign regulatory authorities with respect to our product candidates may result in our clinical data becoming insufficient for approval.

In addition, even if we were to obtain regulatory approval, regulatory authorities may approve our product candidates for fewer or more limited indications than what we requested approval for, may include safety warnings or other restrictions that may negatively impact the commercial viability of our product candidates, including the potential for a favorable price or reimbursement at a level that we would otherwise intend to charge for our products. Likewise, regulatory authorities may grant approval contingent on the performance of costly post-marketing clinical trials or the conduct of an expensive REMS, which could significantly reduce the potential for commercial success or viability of

our product candidates. Any of the foregoing possibilities could materially harm the prospects for our product candidates and business and operations.

We have not previously submitted an NDA, a Marketing Authorization Application ("MAA"), or any corresponding drug approval filing to the FDA, the EMA or any comparable foreign authority for any peptide-based product candidate. Further, our product candidates may not receive regulatory approval even if we complete such filings. If we do not receive regulatory approvals for our product candidates, we may not be able to continue our operations.

Even if we obtain and maintain approval for any of our product candidates from the FDA, we may never obtain approval for our product candidates outside of the United States, which would limit our market opportunities and adversely affect our business.

Sales of our product candidates outside of the United States will be subject to foreign regulatory requirements governing clinical trials and marketing approval and, to the extent that we retain commercial rights following clinical development, we would plan to seek regulatory approval to commercialize our peptide-based product candidates in the United States, the European Union ("EU") and additional foreign countries. Even if the FDA grants marketing approval for a product candidate, comparable regulatory authorities of foreign countries must also approve the manufacturing and marketing of the product candidates in those countries. Approval procedures vary among jurisdictions and can involve requirements and administrative review periods different from, and greater than, those in the United States, including additional pre-clinical studies or clinical trials. In many countries outside the United States, a product candidate must be approved for reimbursement before it can be approved for sale in that country. Obtaining foreign regulatory approvals and compliance with foreign regulatory requirements could result in significant delays, difficulties and costs for us and could delay or prevent the introduction of our products in certain countries. Further, clinical trials conducted in one country may not be accepted by regulatory authorities in other countries and regulatory approval in one country does not ensure approval in any other country, while a failure or delay in obtaining regulatory approval in one country may have a negative effect on the regulatory approval process in others. If we fail to comply with the regulatory requirements in international markets or to receive applicable marketing approvals, our target market will be reduced and our ability to realize the full market potential of our peptide-based product candidates will be harmed and our business will be adversely affected.

We may fail to obtain orphan drug designations from the FDA and/or EU for our product candidates, as applicable, and even if we obtain such designations, we may be unable to maintain the benefits associated with orphan drug designation, including the potential for market exclusivity.

Our strategy includes filing for orphan drug designation where available for our product candidates. Under the Orphan Drug Act, the FDA may grant orphan drug designation to a drug or biologic intended to treat a rare disease or condition, which is defined as one occurring in a patient population of fewer than 200,000 in the United States, or a patient population greater than 200,000 in the United States where there is no reasonable expectation that the cost of developing the drug or biologic will be recovered from sales in the United States. In the United States, orphan drug designation entitles a party to financial incentives such as opportunities for grant funding towards clinical trial costs, tax advantages and user-fee waivers. In addition, if a product that has orphan drug designation subsequently receives the first FDA approval for the disease for which it has such designation, the product is entitled to orphan drug exclusivity, which means that the FDA may not approve any other applications, including a full NDA or BLA, to market the same drug or biologic for the same indication for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan drug exclusivity or where the manufacturer is unable to assure sufficient product quantity.

PTG-300 has received orphan drug designation for the treatment of patients with PV from the FDA and the EU. Despite this designation, we may be unable to maintain the benefits associated with orphan drug status, including market exclusivity. We may not be the first to obtain regulatory approval of a product candidate for any orphan-designated indication that we may pursue due to the uncertainties associated with developing pharmaceutical products. In addition, exclusive marketing rights in the United States may be limited if we seek approval for an indication broader than the orphan-designated indication or may be lost if the FDA later determines that the request for designation was

materially defective or if we are unable to assure sufficient quantities of the product to meet the needs of patients with the orphan-designated disease or condition. Further, even if we obtain orphan drug designation exclusivity for a product, that exclusivity may not effectively protect the product from competition because different drugs with different active moieties may receive and be approved for the same condition, and only the first applicant to receive approval will receive the benefits of marketing exclusivity. Even after an orphan-designated product is approved, the FDA can subsequently approve a later drug with the same active moiety for the same condition if the FDA concludes that the later drug is clinically superior if it is shown to be safer, more effective or makes a major contribution to patient care. In addition, while we may seek orphan drug designation for our product candidates, we may never receive such designations.

Risks Related to Commercialization of our Product Candidates

We currently have no marketing and sales organization. To the extent any of our peptide-based product candidates for which we maintain commercial rights is approved for marketing, if we are unable to establish marketing and sales capabilities or enter into agreements with third parties to market and sell our peptide-based product candidates, we may not be able to effectively market and sell any peptide-based product candidates, or generate product revenue.

We currently do not have a marketing or sales organization for the marketing, sales and distribution of pharmaceutical products. In order to commercialize any peptide-based product candidates that receive marketing approval, we would have to build marketing, sales, distribution, managerial and other non-technical capabilities or make arrangements with third parties to perform these services, and we may not be successful in doing so. In the event of successful development of any of our product candidates, we may elect to build a targeted specialty sales force which will be expensive and time consuming. Any failure or delay in the development of our internal sales, marketing and distribution capabilities would adversely impact the commercialization of these products. With respect to our peptide-based product candidates, we may choose to partner with third parties that have direct sales forces and established distribution systems, either to augment our own sales force and distribution systems or in lieu of our own sales force and distribution systems, and in the case of the Janssen License and Collaboration Agreement, we may elect to exercise our Co-Detailing Option (as described below), which would require us to establish a U.S. sales team. If we are not successful in commercializing our peptide-based product candidates, either on our own or through collaborations with one or more third parties, our future revenue will be materially and adversely impacted.

We have not yet negotiated our agreement with Janssen specifying all of the terms of our Co-Detailing Option and would need to develop our own internal sales force.

Pursuant to the Janssen License and Collaboration Agreement, we have an option, which, if PTG-200 and/or any second-generation compounds are approved for commercial sale, allows us to elect to provide up to 30% of the PTG-200 selling effort in the United States with sales force personnel (the "Co-Detailing Option"). While the Janssen License and Collaboration Agreement includes the material terms of our Co-Detailing Option, Janssen and we mutually agreed to negotiate a separate agreement specifying the detailed activities and responsibilities in respect of the marketing and co-promotion following our election to exercise our Co-Detailing Option. We will need to negotiate this separate agreement with Janssen and, as a result, Janssen may place restrictions or additional obligations on us, including financial obligations. Any restrictions or additional obligations may restrict our co-detailing activities or involve more significant financial or other obligations than we currently anticipate. There are risks involved with establishing our own sales force capabilities. Developing an internal sales force and function will require substantial expenditures and will be time-consuming, may expose us to unforeseen costs and expenses, and we may not be able to effectively recruit, train or retain sales personnel. Accordingly, we may be unable to establish our own sales force which could effectively preclude our ability to take any advantage of participating in co-detailing PTG-200 and/or any second-generation compounds in the United States. In addition, any sales force we establish may not be effective, or may be less effective than the any sales force that Janssen utilizes to promote PTG-200 and/or any second-generation compounds. In such event, commercialization may be adversely affected, which could materially and adversely affect any sales milestone payments or royalties we may receive under the Janssen License and Collaboration Agreement.

Even if our product candidates receive marketing approval, they may fail to achieve market acceptance by physicians, patients, government payors (including Medicare and Medicaid programs), private insurers, and other third-party payors, or 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, government payors, other third-party payors and other healthcare providers. If any of our approved products fail to achieve an adequate level of acceptance, we may not generate significant revenue to become profitable. The degree of market acceptance, if approved for commercial sale, will depend on a number of factors, including but not limited to:

- the efficacy and potential advantages compared to alternative treatments;
- effectiveness of sales, marketing and distribution efforts;
- the cost of treatment in relation to alternative treatments;
- the 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 willingness of the medical community to offer customers our product candidates in addition to or in the place of current injectable therapies;
- the availability of government and third-party coverage and adequate reimbursement;
- the prevalence and severity of any side effects; and
- any restrictions on the use of our product candidates together with other medications.

Because we expect sales of our peptide-based product candidates, if approved, to generate revenue for us to achieve profitability, the failure of our peptide-based product candidates to achieve market acceptance would harm our business and could require us to seek collaborations or undertake additional financings sooner than we would otherwise plan.

Recently enacted and future legislation may increase the difficulty and cost for us to obtain marketing approval of and commercialize our product candidates and affect the prices we may obtain.

In the United States and some foreign jurisdictions, there have been, and we expect there will continue to be, a number of legislative and regulatory changes and proposed changes regarding the healthcare system that could, among other things, prevent or delay marketing approval of our product candidates, restrict or regulate post-approval activities and affect our ability to profitably sell any peptide-based product candidates for which we obtain marketing approval.

For example, in the United States in March 2010, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010, or collectively, the ACA, was enacted to increase access to health insurance, reduce or constrain the growth of healthcare spending, enhance remedies against fraud and abuse, add new transparency requirements for health care and the health insurance industries, impose new taxes and fees on the health industry and impose additional health policy reforms. The law has continued the downward pressure on pharmaceutical pricing, especially under the Medicare program, and increased the industry's regulatory burdens and operating costs.

There remain judicial and Congressional challenges to certain aspects of the ACA, as well as efforts by the current administration to repeal or replace certain aspects of the ACA. Since January 2017, the President has signed

Executive Orders and other directives designed to delay the implementation of certain provisions of the ACA or otherwise circumvent some of the requirements for health insurance mandated by the ACA. Concurrently, Congress has considered legislation that would repeal or repeal and replace all or part of the ACA. While Congress has not passed comprehensive repeal legislation, several bills affecting the implementation of certain taxes under the ACA have been enacted. The Tax Cuts and Jobs Act of 2017 (the "Tax Act") includes a provision repealing, effective January 1, 2019, the tax-based shared responsibility payment imposed by the ACA on certain individuals who fail to maintain qualifying health coverage for all or part of a year. Additionally, the 2020 federal spending package permanently eliminated, effective January 1, 2020, the ACA-mandated "Cadillac" tax on high-cost employer-sponsored health coverage and the medical device tax and, effective January 1, 2021, also eliminates the health insurance tax. Further, the Bipartisan Budget Act of 2018 (the "BBA") among other things, amends the ACA, effective January 1, 2019, to close the coverage gap in most Medicare drug plans, commonly referred to as the "donut hole." Congress may consider other legislation to repeal or replace other elements of the ACA. On December 14, 2018, a Texas U.S. District Court Judge ruled that the ACA is unconstitutional in its entirety because the "individual mandate" was repealed by Congress as part of the Tax Act. Additionally, on December 18, 2019, the U.S. Court of Appeals for the 5th Circuit upheld the District Court ruling that the individual mandate was unconstitutional and remanded the case back to the District Court to determine whether the remaining provisions of the ACA are invalid as well. On March 2, 2020, the U.S. Supreme Court granted the petitions for writs of certiorari to review this case. It is unclear how such litigation and other efforts to repeal and replace the ACA will impact the ACA and our business.

In addition, other legislative changes have been proposed and adopted in the United States since the ACA was enacted. These changes included aggregate reductions to Medicare payments to providers of 2% per fiscal year, which went into effect in April 2013 and, due to subsequent legislative amendments to the statute, including the BBA, will remain in effect through 2030 unless additional action is taken by Congress. The CARES Act suspended the 2% Medicare sequester from May 1, 2020 through December 31, 2020, and has extended the sequester by one year, through 2030. In January 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, further reduced Medicare payments to several types of providers and increased the statute of limitations period in which the government may recover overpayments to providers from three to five years.

Further, there has been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products. Such scrutiny has resulted in several recent 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 products. At the federal level, the current administration's budget proposal for fiscal year 2021 includes a $135 billion allowance to support legislative proposals seeking to reduce drug prices, increase competition, lower out-of-pocket drug costs for patients and increase patient access to lower-cost generic and biosimilar drugs. On March 10, 2020, the current administration sent "principles" for drug pricing to Congress, calling for legislation that would, among other things, cap Medicare Part D beneficiary out-of-pocket pharmacy expenses, provide an option to cap Medicare Part D beneficiary monthly out-of-pocket expenses, and place limits on pharmaceutical price increases. Further, the current administration previously released a "Blueprint" to lower drug prices and reduce out-of-pocket costs of drugs that contained additional proposals to increase drug manufacturer competition, increase the negotiating power of certain federal health programs, incentivize manufacturers to lower the list price of their products and reduce the out-of-pocket costs of drug products paid by consumers. Additionally, on July 24, 2020, the current president announced four executive orders related to prescription drug pricing that attempt to implement several of the administration's proposals, including a policy that would tie certain Medicare Part B and Part D drug prices to international drug prices, the details of which were released on September 13, 2020; one that directs the U.S. Department of Health and Human Services, or HHS, to finalize the Canadian drug importation proposed rule previously issued by HHS and makes other changes allowing for personal importation of drugs from Canada; one that directs HHS to finalize the rulemaking process on modifying the anti-kickback law safe harbors for plans, pharmacies, and pharmaceutical benefit managers; and one that reduces costs of insulin and epipens to patients of federally qualified health centers. The FDA also recently released a final rule, effective November 30, 2020, implementing a portion of the importation executive order providing guidance for states to build and submit importation plans for drugs from Canada. While some of the measures may require additional authorization to become effective, Congress and the current administration have both stated that they will continue to seek new legislative and/or administrative measures to control drug costs. At the state level, legislatures have become increasingly aggressive in passing legislation and implementing

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. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability or commercialize our product candidates, if approved.

We expect that additional state and federal healthcare reform measures will be adopted in the future, any of which could limit the amounts that federal and state governments will pay for healthcare therapies, which could result in reduced demand for our peptide-based product candidates or additional pricing pressures. Further, it is possible that additional governmental action is taken in response to the COVID-19 pandemic. For example, on August 6, 2020, the current administration issued another executive order that instructs the federal government to develop a list of "essential" medicines and then buy them and other medical supplies from U.S. manufacturers instead of companies around the world, including China. The order is meant to reduce regulatory barriers to domestic pharmaceutical manufacturing and catalyze manufacturing technologies needed to keep drug prices low and promote the production of drug products in the United States.

Legislative and regulatory proposals have also been made to expand post-approval requirements and restrict sales and promotional activities for pharmaceutical products. We cannot be sure whether additional legislative changes will be enacted, or whether the FDA regulations, guidance or interpretations will be changed, or what the impact of such changes on the marketing approvals of our product candidates, if any, may be. In addition, increased scrutiny by the U.S. Congress of the FDA's approval process may significantly delay or prevent marketing approval, as well as subject us to more stringent product labeling and post-marketing testing and other requirements.

Governments outside the United States tend to impose strict price controls, which may adversely affect our revenues, if any.

In some countries, the pricing of prescription pharmaceuticals is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after the receipt of marketing approval for a product candidate. In addition, there can be considerable pressure by governments and other stakeholders on prices and reimbursement levels. Political, economic and regulatory developments may further complicate pricing negotiations, and pricing negotiations may continue after coverage and reimbursement have been obtained. To obtain reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost-effectiveness of our product candidate to other available therapies, which is time-consuming and costly. If coverage and reimbursement of our product candidates are unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our business could be harmed, possibly materially.

We currently conduct, and intend to continue to conduct, a substantial portion of the clinical trials for our product candidates outside of the United States. If approved, we may commercialize our product candidates abroad. We will thus be subject to the risks of doing business outside of the United States.

We currently conduct, and intend to continue to conduct, a substantial portion of our clinical trials outside of the United States and, if approved, we intend to also market our peptide-based product candidates outside of the United States. We are thus subject to risks associated with doing business outside of the United States. Our business and financial results in the future could be adversely affected due to a variety of factors associated with conducting development and marketing of our peptide-based product candidates, if approved, outside of the United States, including:

- medical standard of care and diagnostic criteria may differ in foreign jurisdictions, which may impact our ability to enroll and successfully complete trials designed for U.S. marketing;

- efforts to develop an international sales, marketing and distribution organization may increase our expenses, divert our management's attention from the acquisition or development of peptide-based product candidates or cause us to forgo profitable licensing opportunities in these geographies;

- changes in a specific country's or region's political and cultural climate or economic condition;
- unexpected changes in foreign laws and regulatory requirements;
- difficulty of effective enforcement of contractual provisions and intellectual property protections in foreign countries;
- trade-protection measures, import or export licensing requirements such as Export Administration Regulations promulgated by the U.S. Department of Commerce and fines, penalties or suspension or revocation of export privileges;
- regulations under the U.S. Foreign Corrupt Practices Act and similar foreign anti-corruption laws;
- differing payor reimbursement regimes, governmental payors or patient self-pay systems and price controls;
- the effects of applicable foreign tax structures and potentially adverse tax consequences; and
- significant adverse changes in foreign currency exchange rates which could make the cost of our clinical trials, to the extent conducted outside of the U.S., more expensive.

If we are unable to anticipate and address these risks properly, our business and financial results will be harmed.

Risks Related to Our Business and Industry

We face significant competition from other biotechnology and pharmaceutical companies, and our operating results will suffer if we fail to compete effectively.

The biotechnology and pharmaceutical industries are intensely competitive and subject to rapid and significant technological change. We have competitors worldwide, including major multinational pharmaceutical companies, biotechnology companies, specialty pharmaceutical and generic pharmaceutical companies as well as universities and other research institutions.

Many of our competitors have substantially greater financial, technical and other resources, such as larger research and development staff, and experienced marketing and manufacturing organizations. As a result, these companies may obtain regulatory approval more rapidly than we are able and may be more effective in selling and marketing their products. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large, established companies. Competition may increase further as a result of advances in the commercial applicability of newer technologies and greater availability of capital for investment in these industries. Our competitors may succeed in developing, acquiring or licensing, on an exclusive basis, pharmaceutical products that are easier to develop, more effective or less costly than any product candidates that we are currently developing or that we may develop. If approved, our product candidates are expected to face competition from commercially available drugs as well as drugs that are in the development pipelines of our competitors.

Pharmaceutical companies may invest heavily to accelerate discovery and development of novel compounds or to in-license novel compounds that could make our product candidates less competitive. In addition, any new product that competes with an approved product must demonstrate advantages in efficacy, convenience, tolerability or safety in order to overcome price competition and to be commercially successful. If our competitors succeed in obtaining FDA, EMA or other regulatory approval or discovering, developing and commercializing drugs before we do, there would be a material adverse impact on the future prospects for our product candidates and business. For example, on June 4, 2020, the FDA accepted a Biologics License Application for ropeginterferon alfa-2b for use in treatment for patients

with PV in the absence of symptomatic splenomegaly from PharmaEssentia Corporation, the manufacturer of the novel pegylated interferon. A decision from the FDA on this application is expected in early 2021.

We believe that our ability to successfully compete will depend on, among other things:

- the efficacy and safety of our product candidates, in particular compared to competitor products;
- the time it takes for our product candidates to complete clinical development and receive regulatory approval, if at all;
- the ability to commercialize and market any of our product candidates that receive regulatory approval;
- the price of our products, including in comparison to branded or generic competitors;
- whether coverage and adequate levels of reimbursement are available under private and governmental health insurance plans, including Medicare;
- the ability to protect intellectual property rights related to our product candidates;
- the ability to manufacture and sell commercial quantities of any of our product candidates that receive regulatory approval; and
- acceptance of any of our approved product candidates by physicians, payors and other healthcare providers.

Because our research approach depends on our proprietary technology platform, it may be difficult for us to continue to successfully compete in the face of rapid changes in technology. If we fail to continue to advance our technology platform, technological change may impair our ability to compete effectively and technological advances or products developed by our competitors may render our technologies or product candidates obsolete, less competitive or not economical.

If we fail to comply with state and federal healthcare regulatory laws, we could face substantial penalties, damages, fines, disgorgement, integrity oversight and reporting obligations, exclusion from participation in governmental healthcare programs, and the curtailment of our operations, any of which could adversely affect our business, operations, and financial condition.

Healthcare providers, including physicians, and third-party payors will play a primary role in the recommendation and prescription of any future product candidates we may develop or any product candidates for which we obtain marketing approval. Our arrangements with third-party payors and customers may 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 would market, sell and distribute our products. Even though we do not and will not control referrals of healthcare services or bill directly to Medicare, Medicaid or other third-party payors, federal and state healthcare laws and regulations pertaining to fraud and abuse and patients' rights are and will be applicable to our business. The laws that may affect our ability to operate include, but are not limited to:

- the federal Anti-Kickback Statute;
- the federal false claims laws, including the False Claims Act;
- the federal Health Insurance Portability and Accountability Act of 1996 ("HIPAA");
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act and their implementing regulations, which also imposes obligations, including mandatory contractual terms,

on HIPAA-covered entities and their business associates with respect to safeguarding the privacy, security and transmission of individually identifiable health information;

- the federal civil monetary penalties statute;
- the federal Physician Payments Sunshine Act; and
- analogous state and foreign laws and regulations, such as state anti-kickback and false claims laws.

Further, the ACA, among other things, amended the intent requirements of the federal Anti-Kickback Statute and certain criminal statutes governing healthcare fraud. Any violations of these laws, or any action against us for violation of these laws, even if we successfully defend against it, could result in a material adverse effect on our reputation, business, results of operations and financial condition.

We have entered into consulting and scientific advisory board arrangements with physicians and other healthcare providers, including some who could influence the use of our product candidates, if approved. While we have worked to structure our arrangements to comply with applicable laws, 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.

The scope and enforcement of each of these laws is uncertain and subject to rapid change in the current environment of healthcare reform. Federal and state enforcement bodies have continued to increase their scrutiny of interactions between healthcare companies and healthcare providers, which has led to a number of significant investigations, prosecutions, convictions and settlements in the healthcare industry. Additionally, as a result of these investigations, healthcare providers and entities may have to agree to additional onerous compliance and reporting requirements as part of a consent decree or corporate integrity agreement. Any such investigation or settlement could significantly increase our costs or otherwise have an adverse effect on our business.

If our operations are found to be in violation of any of these laws or any other governmental laws and regulations that may apply to us, we may be subject to significant civil, criminal and administrative penalties, damages, fines, disgorgement, imprisonment, integrity oversight and reporting obligations, exclusion from government funded healthcare programs, such as Medicare and Medicaid, disgorgement, contractual damages, reputational harm, diminished profits and the curtailment or restructuring of our operations. If, and to the extent that, Janssen or we are unable to comply with these regulations, our ability to earn potential royalties from worldwide net sales of PTG-200 would be materially and adversely impacted. 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. The imposition of any of these penalties or other commercial limitations could negatively impact our collaboration with Janssen or cause Janssen to terminate the Janssen License and Collaboration Agreement, either of which would materially and adversely affect our business, financial condition and results of operations.

Our future success depends on our ability to retain our executive officers and to attract, retain and motivate qualified personnel. If we are not successful in attracting and retaining highly qualified personnel, we may not be able to successfully implement our business strategy.

Our industry has experienced a high rate of turnover of management personnel in recent years. Our ability to compete in the highly competitive biotechnology and pharmaceuticals industries depends upon our ability to attract and retain highly qualified managerial, scientific, medical and regulatory personnel. We are highly dependent on our existing senior management team. In order to induce valuable employees to continue their employment with us, we have provided stock options that vest over time. The value to employees of stock options that vest over time is significantly affected by movements in our stock price that are beyond our control and may at any time be insufficient to maintain retention incentives or counteract more lucrative offers from other companies. All of our employees may

terminate their employment with us at any time, with or without notice. The loss of the services of any of our executive officers or other key employees and our inability to find suitable replacements would harm our research and development efforts, our collaboration efforts, as well as our business, financial condition and prospects. Our success also depends on our ability to continue to attract, retain and motivate highly skilled and experienced personnel with scientific, medical, regulatory, manufacturing and management training and skills.

We may not be able to attract or retain qualified personnel in the future due to the intense competition for a limited number of qualified personnel among biopharmaceutical, biotechnology, pharmaceutical and other businesses. Many of the other biopharmaceutical and pharmaceutical companies that we compete against for qualified personnel have greater financial and other resources, different risk profiles and a longer history in the industry than we do. Any or all of these competing factors may limit our ability to continue to attract and retain high quality personnel, which could negatively affect our ability to successfully develop and commercialize peptide-based product candidates and to grow our business and operations as currently contemplated.

We may need to expand the size of our organization, and we may experience difficulties in managing this growth.

As of September 30, 2020, we had 76 full-time equivalent employees, including 57 full-time equivalent employees engaged in research and development. As our development and commercialization plans and strategies develop and we continue to operate as a public company, we expect to need additional managerial, operational, scientific, sales, marketing, development, regulatory, manufacturing, financial and other resources. Future growth would impose significant added responsibilities on members of management, including:

- designing and managing our clinical trials effectively;
- identifying, recruiting, maintaining, motivating and integrating additional employees;
- managing our manufacturing and development efforts effectively; and
- improving our managerial, development, operational and financial systems and controls.

As our operations expand, we expect that we will need to manage relationships with strategic collaborators, CROs, contract manufacturers, suppliers, vendors and other third parties. Our future financial performance and our ability to develop and commercialize our peptide-based product candidates and to compete effectively will depend, in part, on our ability to manage any future growth effectively. We may not be successful in accomplishing these tasks in growing our company, and our failure to accomplish any of them could adversely affect our business and operations.

Significant disruptions of information technology systems or breaches of data security could adversely affect our business.

Our business is increasingly dependent on critical, complex and interdependent information technology systems, including Internet-based systems, to support business processes as well as internal and external communications. The size and complexity of our internal computer systems and those of our CROs, contract manufacturers, collaboration partner, and other third parties on which we rely may make them potentially vulnerable to breakdown, telecommunications and electrical failures, malicious intrusion and computer viruses that may result in the impairment of key business processes. In addition, our systems are potentially vulnerable to data security breaches-whether by employees or others-that may expose sensitive data to unauthorized persons. Such data security breaches could lead to the loss of trade secrets or other intellectual property or could lead to the public exposure of personally identifiable information (including sensitive personal information) of our employees, collaborators, clinical trial patients, and others. A data security breach or privacy violation that leads to disclosure or modification of or prevents access to patient information, including personally identifiable information or protected health information, could harm our reputation, compel us to comply with federal and/or state breach notification laws, subject us to mandatory corrective action, require us to verify the correctness of database contents and otherwise subject us to liability under laws and regulations that protect personal data, resulting in increased costs or loss of revenue. If we are unable to prevent such data security breaches or privacy violations or implement satisfactory remedial measures, our operations

could be disrupted, and we may suffer loss of reputation, financial loss and other regulatory penalties because of lost or misappropriated information, including sensitive patient data. While we have implemented security measures to protect our data security and information technology systems, such measures may not prevent such events. Any such disruptions and breaches of security could have a material adverse effect on the development of our product candidates as well as our business and financial condition.

Our insurance policies are expensive and only protect us from some business risks, which will leave us exposed to significant uninsured liabilities.

We do not carry insurance for all categories of risk that our business may encounter. Some of the policies we currently maintain include general liability, employment practices liability, property, cyber, auto liability, workers' compensation, clinical trial, products liability and directors' and officers' insurance. We do not know, however, if we will be able to maintain insurance with adequate levels of coverage to insure risks which could arise from our operations. Any significant uninsured losses or liabilities may require us to pay substantial amounts from corporate cash intended to fund operations, which would adversely affect our financial position and results of operations.

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 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. Our operations involve the use of hazardous and flammable materials, including chemicals and biological materials, and 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. In the event of contamination or injury resulting from our use of hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties.

If we, or our contractors or agents are unable to comply with federal, state and county environmental and safety laws and regulations, including those governing laboratory procedures and the handling of biohazardous materials, chemicals and various radioactive compounds, considerable additional costs or liabilities could be assessed that would have a material adverse effect on our financial condition. We, our collaborators, contractors or agents may be required to incur significant costs to comply with current or future environmental laws and regulations and may be adversely affected by the cost of compliance with these laws and regulations.

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 or other work-related injuries, this insurance may not provide adequate coverage against potential liabilities. These current or future laws and regulations may impair our research, development or production efforts. Failure to comply with these laws and regulations also may result in substantial fines, penalties or other sanctions.

Our employees, independent contractors, principal investigators, consultants and vendors may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements, which could have a material adverse effect on our business.

We are exposed to the risk that our employees, independent contractors, principal investigators, consultants and vendors may engage in fraudulent conduct or other illegal activity. Misconduct by these parties could include intentional, reckless and/or negligent conduct or disclosure of unauthorized activities to us that violates: (i) FDA laws and regulations or those of comparable foreign regulatory authorities, (ii) manufacturing standards, (iii) federal and state data privacy, security, fraud and abuse and other healthcare laws and regulations established and enforced by comparable foreign regulatory authorities, or (iv) laws that require the true, complete and accurate reporting of financial information or data. Activities subject to these laws also involve the improper use or misrepresentation of information obtained in the course of clinical trials, creating fraudulent data in our pre-clinical studies or clinical trials or illegal misappropriation of drug product, which could result in regulatory sanctions and cause serious harm to our reputation.

It is not always possible to identify and deter misconduct by employees and third-parties, 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 be in compliance with such laws or regulations. Additionally, we are subject to the risk that a person or government could allege such fraud or other misconduct, even if none occurred. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business and results of operations, including the imposition of significant fines or other sanctions.

If product liability lawsuits are brought against us, we may incur substantial liabilities and may be required to limit commercialization of any of our peptide-based product candidates, if approved.

We face an inherent risk of product liability as a result of the clinical testing of our peptide-based product candidates and will face an even greater risk if we commercialize any products. For example, we may be sued if any product we develop allegedly causes injury or is found to be otherwise unsuitable during product testing, manufacturing, marketing or sale. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product, negligence, strict liability and a breach of warranties. If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to stop development or, if approved, limit commercialization of our peptide-based product candidates.

Even successful defense would require significant financial and management resources. Regardless of the merits or eventual outcome, liability claims may result in:

- delay or termination of clinical studies;
- injury to our reputation;
- withdrawal of clinical trial participants;
- initiation of investigations by regulators;
- costs to defend the related litigation;
- a diversion of management's time and our resources;
- substantial monetary awards to trial participants or patients;
- decreased demand for our peptide-based product candidates;
- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- loss of revenue from product sales; and
- the inability to commercialize any our peptide-based product candidates, if approved.

Our inability to obtain and retain sufficient product liability insurance at an acceptable cost to protect against potential product liability claims could prevent or inhibit the development or commercialization of our peptide-based product candidates. We currently carry clinical trial liability insurance for our clinical trials. Although we maintain such insurance, any claim that may be brought against us could result in a court judgment or settlement in an amount that is not covered, in whole or in part, by our insurance or that is in excess of the limits of our insurance coverage. Our insurance policies also have various exclusions, and we may be subject to a product liability claim for which we have no coverage. We will have to pay any amounts awarded by a court or negotiated in a settlement that exceed our

coverage limitations or that are not covered by our insurance, and we may not have, or be able to obtain, sufficient capital to pay such amounts.

Our headquarters and certain of our data storage facilities are located near known earthquake fault zones. The occurrence of an earthquake, fire or any other catastrophic event could disrupt our operations or the operations of third parties who provide vital support functions to us, which could have a material adverse effect on our business and financial condition.

We and some of the third party service providers on which we depend for various support functions, such as data storage, are vulnerable to damage from catastrophic events, such as power loss, natural disasters, terrorism and similar unforeseen events beyond our control. Our corporate headquarters and other facilities are located in the San Francisco Bay Area, which in the past has experienced severe earthquakes and fires. We do not carry earthquake insurance. Earthquakes or other natural disasters could severely disrupt our operations, and have a material adverse effect on our business, results of operations, financial condition and prospects.

If a natural disaster, power outage or other event occurred that prevented us from using all or a significant portion of our headquarters, damaged critical infrastructure, such as our data storage facilities or financial systems, or that otherwise disrupted operations, 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 and business continuity plan in place. We may incur substantial expenses as a result of the absence or limited nature of our internal or third party service provider disaster recovery and business continuity plans, which, particularly when taken together with our lack of earthquake insurance, could have a material adverse effect on our business. Furthermore, integral parties in our supply chain are operating from single sites, increasing their vulnerability to natural disasters or other sudden, unforeseen and severe adverse events. If such an event were to affect our supply chain, it could have a material adverse effect on our development plans and business.

The insurance coverage and reimbursement status of newly approved products is uncertain. Failure to obtain or maintain adequate coverage and reimbursement for our peptide-based product candidates could limit our ability to generate revenue.

The availability and extent of reimbursement by governmental and private payors is essential for most patients to be able to afford medications and therapies. Sales of any of our peptide-based product candidates that receive marketing approval will depend substantially, both in the United States and internationally, on the extent to which the costs of our peptide-based product candidates will be paid by health maintenance, managed care, pharmacy benefit and similar healthcare management organizations, or reimbursed by government health administration authorities, private health coverage insurers and other third-party payors. If reimbursement is not available, or is available only to limited levels, we may not be able to successfully commercialize our product candidates. Even if coverage is provided, the approved reimbursement amount may not be high enough to allow us to establish or maintain adequate pricing that will allow us to realize a sufficient return on our investment.

There is significant uncertainty related to the insurance coverage and reimbursement of newly approved products. In the United States, the principal decisions about reimbursement for new products are typically made by the Centers for Medicare & Medicaid Services (“CMS”). CMS decides whether and to what extent a new product will be covered and reimbursed under Medicare. Private payors tend to follow CMS to a substantial degree, but also have their own methods and approval process. Therefore, coverage and reimbursement can differ significantly from payor to payor. It is difficult to predict what CMS will decide with respect to reimbursement for novel products such as ours since there is no body of established practices and precedents for these new products.

Outside the United States, international operations are generally subject to extensive governmental price controls and other market regulations, and we believe the increasing emphasis on cost-containment initiatives in Europe, Canada and other countries may cause us to price our product candidates on less favorable terms than we currently anticipate. In many countries, particularly the countries of the European Union, the prices of medical products are subject to varying price control mechanisms as part of national health systems. In these countries, pricing negotiations with governmental authorities can take considerable time after the receipt of marketing approval for a

product. To obtain reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost-effectiveness of our peptide-based product candidates to other available therapies. In general, the prices of products under such systems are substantially lower than in the United States. Additional foreign price controls or other changes in pricing regulation could restrict the amount that we are able to charge for our peptide-based product candidates. Accordingly, in markets outside the United States, the reimbursement for our products may be reduced compared with the United States and may be insufficient to generate commercially reasonable revenues and profits.

Moreover, increasing efforts by governmental and third-party payors, in the United States and internationally, to cap or reduce healthcare costs may cause such organizations to limit both coverage and level of reimbursement for new products approved and, as a result, they may not cover or provide adequate payment for our product candidates. The downward pressure on healthcare costs in general, particularly prescription drugs and surgical procedures and other treatments, has become very intense. As a result, increasingly high barriers are being erected to the entry of new products into the healthcare market.

Risks Related to Our Intellectual Property

If we are unable to obtain or protect intellectual property rights related to our product candidates and technologies, we may not be able to compete effectively in our markets.

We rely upon a combination of patent protection, trade secret protection and confidentiality agreements to protect the intellectual property related to our product candidates and technologies. The strength of patents in the biotechnology and pharmaceutical field involves complex legal and scientific questions and can be uncertain. The patent prosecution process is expensive and time-consuming, and we may not be able to file and prosecute all necessary or desirable patent applications at a reasonable cost, in a timely manner, or in all jurisdictions. The patent applications that we own or license may fail to result in issued patents in the United States or in other foreign countries, or they may fail to result in issued patents with claims that cover our product candidates or technologies in the United States or in other foreign countries. There is no assurance that all the potentially relevant prior art relating to our patent and patent applications has been found, which can invalidate a patent or prevent a patent from issuing from a pending patent application. Even if patents have been issued, or do successfully issue, from 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, our patent and patent applications may not adequately protect our intellectual property, provide exclusivity for our product candidates and technologies, or prevent others from designing around our claims.

If the breadth or strength of protection provided by the patent and patent applications we hold, obtain or pursue with respect to our product candidates and technologies is challenged, or if they fail to provide meaningful exclusivity for our product candidates and technologies, it could threaten our ability to commercialize our product candidates and technologies. Several patent applications covering our product candidates and technologies have been filed. We cannot offer any assurances about which, if any, patents will issue, the breadth of any such patent, or whether any issued patents will be found invalid and unenforceable or will be threatened by third parties. Any successful opposition or other challenge to these patents or any other patents owned by or, if applicable in the future, licensed to us could deprive us of rights necessary for the successful commercialization of any product candidates and technologies that we may develop. Since patent applications in the United States and most other countries are confidential for a period of time after filing, we cannot be certain that we or our licensors were the first to file any patent application related to our product candidates and technologies.

In addition, patents have a limited lifespan. In the United States, the natural expiration of a patent is generally 20 years after it is filed. Various extensions may be available however the life of a patent, and the protection it affords, is limited. 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 generic medications. For example, our granted U.S. patents covering PN-943 and PTG-200 expire in 2035, and our granted U.S. patent covering PTG-300 expires in 2034. In addition, although upon issuance in the United States the life of a patent can be increased based on certain delays caused by the U.S. Patent and Trademark Office (the “PTO”), this increase can be reduced or eliminated based on certain delays caused by the patent

applicant during patent prosecution. Further, if we encounter delays in our clinical trials or in gaining regulatory approval, the period of time during which we could market any of our product candidates under patent protection, if approved, would be reduced.

We may not be able to protect our intellectual property rights throughout the world. Filing, prosecuting and defending patents on all of our product candidates throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States may be less extensive than those in the United States. Many companies have encountered significant problems in protecting and defending intellectual property rights in certain foreign jurisdictions. The legal systems of some countries, particularly developing countries, do not favor the enforcement of patent and other intellectual property rights, especially those relating to life sciences. In addition, the laws of some foreign countries do not protect intellectual property rights, including trade secrets, to the same extent as federal and state laws of the United States. In addition, many countries limit the enforceability of patents against third parties, including government agencies or government contractors. In these countries, patents may provide limited or no benefit. Moreover, our ability to protect and enforce our intellectual property rights may be adversely affected by unforeseen changes in foreign intellectual property laws.

Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and, further, may export otherwise infringing products to territories where we have patent protection but enforcement is not as strong as in the United States. These products may compete with our products in jurisdictions where we do not have any issued patents and our patent claims or other intellectual property rights may not be effective or sufficient to prevent them from so competing. Also, 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. If, in the future, we obtain licenses from third parties, in some circumstances, we may not have the right to control the preparation, filing and prosecution of patent applications or to maintain any patents, covering technology that we license from third parties. We may also require the cooperation of our licensors to enforce any licensed patent rights, and such cooperation may not be provided. Therefore, these patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business. Moreover, if we do obtain necessary licenses, we will likely have obligations under those licenses, and any failure to satisfy those obligations could give our licensor the right to terminate the license. Termination of a necessary license could have a material adverse impact on our business.

While we hold issued patents and have filed patent applications to protect certain aspects of our product candidates, we also rely on trade secret protection and confidentiality agreements to protect proprietary scientific, business and technical information and know-how that is not or may not be patentable or that we elect not to patent. For example, we primarily rely on trade secrets and confidentiality agreements to protect our peptide therapeutics technology platform. Any disclosure to or misappropriation by third parties of our confidential proprietary information could enable competitors to quickly duplicate or surpass our technological achievements, thus eroding our competitive position in our market. If we are unable to protect the confidentiality of our trade secrets and proprietary know-how or if competitors independently develop viable competing products, our business and competitive position may be harmed.

We seek to protect our proprietary information, data and processes, in part, by confidentiality agreements and invention assignment agreements with our employees, consultants, scientific advisors, contractors and partners. Although these agreements are designed to protect our proprietary information, 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. Although we require all of our employees to assign their inventions to us, and endeavor to execute confidentiality agreements with all of our employees, consultants, advisors and any third parties who have access to our proprietary know-how and other confidential information related to such technology, we cannot be certain that we have executed such agreements with all third parties who may have helped to develop our intellectual property or who had access to our proprietary information, nor can be we certain that our agreements will not be breached. If any of the parties to these confidentiality agreements breaches or violates the terms of such agreements, we may not have adequate remedies for any such breach or violation, and we could lose our trade secrets as a result.

We also seek to preserve the integrity and confidentiality of our data, trade secrets and know-how by maintaining physical security of our premises and physical and electronic security of our information technology systems. We cannot guarantee that our trade secrets and other proprietary and confidential information will not be disclosed or that competitors will not otherwise gain access to our trade secrets.

Enforcing a claim that a third party illegally obtained and is using our trade secrets, like patent litigation, is expensive and time-consuming, and the outcome is unpredictable. Further, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the United States. As a result, we may encounter significant problems in protecting and defending our intellectual property both in the United States and abroad. Additionally, if the steps taken to maintain our trade secrets are deemed inadequate, we may have insufficient recourse against third parties for misappropriating the trade secret. We cannot guarantee that our employees, former employees or consultants will not file patent applications claiming our inventions. Because of the "first-to-file" laws in the United States, such unauthorized patent application filings may defeat our attempts to obtain patents on our own inventions.

Trade secrets and know-how can be difficult to protect as trade secrets and know-how will over time be disseminated within the industry through independent development, the publication of journal articles, and the movement of personnel skilled in the art from company to company or academic to industry scientific positions. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent such competitor from using that technology or information to compete with us, which could harm our competitive position. If we are unable to prevent material disclosure of the intellectual property related to our technologies to third parties, we will not be able to establish or maintain a competitive advantage in our market, which could materially adversely affect our business, results of operations and financial condition.

Even if we are able to adequately protect our trade secrets and proprietary information, our trade secrets could otherwise become known or could be independently discovered by our competitors. Competitors could purchase our products and attempt to replicate some or all of the competitive advantages we derive from our development efforts, willfully infringe our intellectual property rights, design around our protected technology or develop their own competitive technologies that fall outside of our intellectual property rights. If any of our trade secrets were to be lawfully obtained or independently developed by a competitor, in the absence of patent protection, we would have no right to prevent them, or those to whom they communicate, from using that technology or information to compete with us. If our trade secrets are not adequately protected so as to protect our market against competitors' products, others may be able to exploit our proprietary peptide product candidate discovery technologies to identify and develop competing product candidates, and thus our competitive position could be adversely affected, as could our business.

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

Competitors may infringe our issued patents or any patents issued as a result of our pending or future patent applications. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time-consuming. In addition, in an infringement proceeding, a court may decide that a patent of ours is not valid or is unenforceable or may refuse to stop the other party in such infringement proceeding from using the technology at issue on the grounds that our patents do not cover the technology in question. An adverse result in any litigation or defense proceedings could put one or more of our patents at risk of being invalidated, held unenforceable or interpreted narrowly, and could put any of our patent applications at risk of not yielding an issued patent.

Interference or derivation proceedings provoked by third parties or brought by us, the PTO or any foreign patent authority may be necessary to determine the priority or ownership of inventions with respect to our patent or patent applications. Our defense of litigation, interference or derivation proceedings may fail and, even if successful, may result in substantial costs and distract our management and other employees. An unfavorable outcome could require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially reasonable terms, if any license is offered at all.

Because of the expense and uncertainty of litigation, we may conclude that even if a third party is infringing our issued patents, 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. 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.

We may not be able to prevent misappropriation of our intellectual property, trade secrets or confidential information, particularly in countries where the laws may not protect those rights as fully as in the United States. 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 this type of litigation. In addition, there could 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 substantial adverse effect on the price of our common stock.

Any issued patents covering our product candidates, including any patent that may issue as a result of our pending or future patent applications, could be found invalid or unenforceable if challenged in court in the United States or abroad.

If we initiate legal proceedings against a third party to enforce a patent covering our product candidates or technologies, the defendant could counterclaim that such patent is invalid or unenforceable. In patent litigation in the United States, defendant counterclaims alleging invalidity 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 or non-enablement. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant information from the PTO, or made a misleading statement, during prosecution. Third parties may also raise similar claims before administrative bodies in the United States or abroad, even outside the context of litigation. Such mechanisms include re-examination, inter partes review, post grant review, and equivalent proceedings in foreign jurisdictions, such as opposition or derivation proceedings. Such proceedings could result in revocation or amendment to our patents in such a way that they no longer cover and protect our product candidates or technologies. The outcome following legal assertions of invalidity and unenforceability is unpredictable. With respect to the validity of our patents, for example, we cannot be certain that there is no invalidating prior art of which we, our patent counsel, and the patent examiner were unaware of during prosecution. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, we would lose at least part, and perhaps all, of the patent protection on our product candidates. Such a loss of patent protection could have a material adverse impact on our business.

As more groups become engaged in scientific research and product development in fields related to our product candidates, such as IL-23R, the risk of our patents, or patents that we have in-licensed, being challenged through patent interferences, derivation proceedings, oppositions, re-examinations, litigation or other means will likely increase. An adverse outcome in a patent dispute could have a material adverse effect on our business by:

- causing us to lose patent rights in the relevant jurisdiction(s);
- subjecting us to litigation, or otherwise preventing Janssen or us from commercializing PTG-200 or other product candidates in the relevant jurisdiction(s);
- requiring Janssen or us to obtain licenses to the disputed patents;
- forcing Janssen or us to cease using the disputed technology; or
- requiring Janssen or us to develop or obtain alternative technologies.

An adverse outcome in a patent dispute could severely harm our collaboration with Janssen or cause Janssen to terminate the Janssen License and Collaboration Agreement.

Intellectual property disputes could cause us to spend substantial resources and distract our personnel from their normal responsibilities. Litigation or other legal proceedings relating to intellectual property claims, with or without merit, are unpredictable and generally expensive and time-consuming and, even if resolved in our favor, are 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. 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. Accordingly, despite our efforts, we may not be able to prevent third parties from infringing upon or misappropriating or from successfully challenging our intellectual property rights. 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.

Competitors could enter the market with generic versions of our product candidates, which may result in a material decline in sales of our product candidates.

Under the Hatch-Waxman Act, a pharmaceutical manufacturer may file an abbreviated new drug application ("ANDA"), seeking approval of a generic copy of an approved innovator product. Under the Hatch-Waxman Act, a manufacturer may also submit an NDA under section 505(b)(2) that references the FDA's finding of safety and effectiveness of a previously approved drug. A 505(b)(2) NDA product may be for a new or improved version of the original innovator product. Innovative small molecule drugs may be eligible for certain periods of regulatory exclusivity (e.g., five years for new chemical entities, three years for changes to an approved drug requiring a new clinical study, seven years for orphan drugs), which preclude FDA approval (or in some circumstances, FDA filing and review of) an ANDA or 505(b)(2) NDA relying on the FDA's finding of safety and effectiveness for the innovative drug. In addition to the benefits of regulatory exclusivity, an innovator NDA holder may have patents claiming the active ingredient, product formulation or an approved use of the drug, which would be listed with the product in the FDA publication, "Approved Drug Products with Therapeutic Equivalence Evaluations," known as the "Orange Book." If there are patents listed in the Orange Book, a generic applicant that seeks to market its product before expiration of the patents must include in the ANDA or 505(b)(2) what is known as a "Paragraph IV certification," challenging the validity or enforceability of, or claiming non-infringement of, the listed patent or patents. Notice of the certification must be given to the innovator, too, and if within 45 days of receiving notice the innovator sues to protect its patents, approval of the ANDA is stayed for 30 months, or as lengthened or shortened by the court.

Accordingly, if our product candidates are approved, competitors could file ANDAs for generic versions of our product candidates, or 505(b)(2) NDAs that reference our product candidates. If there are patents listed for our product candidates in the Orange Book, those ANDAs and 505(b)(2) NDAs would be required to include a certification as to each listed patent indicating whether the ANDA applicant does or does not intend to challenge the patent. We cannot predict whether any patents issuing from our pending patent applications will be eligible for listing in the Orange Book, how any generic competitor would address such patents, whether we would sue on any such patents, or the outcome of any such suit.

We may not be successful in securing or maintaining proprietary patent protection for products and technologies we develop or license. Moreover, if any patents that are granted and listed in the Orange Book are successfully challenged by way of a Paragraph IV certification and subsequent litigation, the affected product could more immediately face generic competition and its sales would likely decline materially. Should sales decline, we may have to write off a portion or all of the intangible assets associated with the affected product and our results of operations and cash flows could be materially and adversely affected.

Third party claims of intellectual property infringement may prevent or delay our drug discovery and development efforts.

Our commercial success depends in part on our ability to develop, manufacture, market and sell our drug candidates and use our proprietary technologies without infringing or otherwise violating the patents and proprietary

rights of third parties. There is a substantial amount of litigation involving patent and other intellectual property rights in the biotechnology and pharmaceutical industries, including patent infringement lawsuits, interferences, derivation proceedings, post grant reviews, inter partes reviews, and reexamination proceedings before the PTO or oppositions and other comparable proceedings in foreign jurisdictions. Numerous U.S. and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which we are developing product candidates, and there may be third-party patents or patent applications with claims to materials, formulations, methods of manufacture or methods for treatment related to the use or manufacture of our product candidates and technologies. Third parties, including our competitors, may initiate legal proceedings against us alleging that we are infringing or otherwise violating their patent or other intellectual property rights. Given the vast number of patents in our field of technology, we cannot assure you that marketing of our product candidates or practice of our technologies will not infringe existing patents or patents that may be granted in the future. Because patent applications can take many years to issue and may be confidential for 18 months or more after filing, and because pending patent claims can be revised before issuance, there may be applications now pending of which we are unaware that may later result in issued patents that may be infringed by the practice of our peptide therapeutics technology platform or the manufacture, use or sale of our product candidates. In addition, third parties may obtain patents in the future and claim that our product candidates or technologies infringe upon these patents. If any third-party patents were held by a court of competent jurisdiction to cover the manufacturing process of any of our product candidates, any molecules formed during the manufacturing process or any final product or formulation itself, the holders of any such patents may be able to block our ability to commercialize such product candidate unless we obtained a license under the applicable patents, or until such patents expire. As our industry expands and more patents are issued, the risk increases that our product candidates or technologies may give rise to claims of infringement of the patent rights of others.

Parties making claims against us may obtain injunctive or other equitable relief, which could effectively block our ability to further practice our technologies or develop and commercialize our product candidates. Defense of these claims, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business. Even if we are successful in defending against any infringement claims, litigation is expensive and time-consuming and is likely to divert management's attention and substantial resources from our core business. In the event of a successful claim of infringement against us, we may have to pay substantial damages, limit our uses, pay royalties or redesign our infringing product candidates, which may be impossible or require substantial time and monetary expenditure. We may choose to seek, or may be required to seek, a license from the third-party patent holder and would most likely be required to pay license fees or royalties or both, each of which could be substantial. These licenses may not be available on commercially reasonable terms, however, or at all. Even if we were able to obtain a license, the rights we obtain may be nonexclusive, which would provide our competitors access to the same intellectual property rights upon which we are forced to rely. Furthermore, even in the absence of litigation, 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 such an event, we would be unable to further practice our technologies or develop and commercialize any of our product candidates at issue, which could harm our business significantly.

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.

We may not be successful in obtaining or maintaining necessary rights to protect our product candidates through acquisitions and in-licenses. We may find that our programs require the use of proprietary rights held by third parties or the growth of our business may depend in part on our ability to acquire, in-license or use these proprietary rights. We may be unable to acquire or in-license compositions, methods of use, processes or other third party intellectual property rights from third parties we identify as necessary for our product candidates. The licensing and acquisition of third party intellectual property rights is a competitive area, and a number of more established companies are also pursuing strategies to license or acquire third party intellectual property rights that we may consider attractive. In addition, companies that perceive us to be a competitor may be unwilling to assign or license rights to us. We also may be unable to license or acquire third party intellectual property rights on terms that would allow us to make an appropriate return on our investment. Even if we are able to obtain a license to intellectual property of interest, we may not be able to secure exclusive rights, in which case others could use the same rights and compete with us.

If we are unable to successfully obtain rights to required third party intellectual property rights or maintain the existing intellectual property rights we have, we may have to abandon development of that program and our business and financial condition could suffer.

Obtaining and maintaining patent protection depends on compliance with various procedural, document submission, 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.

The PTO and various non-U.S. governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process. Periodic maintenance fees, renewal fees, annuity fees and various other governmental fees on patents and/or applications will be due to be paid to the PTO and various governmental patent agencies outside of the United States in several stages over the lifetime of the patents and/or applications. We employ reputable law firms and other professionals and rely on such third parties to help us comply with these requirements and effect payment of these fees with respect to the patent and patent applications that we own, and if we in-license intellectual property we may have to rely upon our licensors to comply with these requirements and effect payment of these fees with respect to any patents and patent applications that we license. In many cases, an inadvertent lapse can be cured by payment of a late fee or by other means in accordance with the applicable rules. However, 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. In such an event, our competitors might be able to enter the market and this circumstance would have a material adverse effect on our business.

Recent patent reform legislation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of our issued patents.

On September 16, 2011, the Leahy-Smith America Invents Act ("Leahy-Smith Act") was signed into law. The Leahy-Smith Act includes a number of significant changes to United States patent law. These include provisions that affect the way patent applications are prosecuted and may also affect patent litigation. The PTO has developed regulations and procedures to govern administration of the Leahy-Smith Act, but many of the substantive changes to patent law associated with the Leahy-Smith Act, and in particular, the first to file provisions, did not become effective until March 2013, 18 months after its enactment. Accordingly, it is not clear what, if any, impact the Leahy-Smith Act will have on the operation of our business. 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 and financial condition.

Recent U.S. Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. Depending on decisions by the U.S. Congress, the federal courts, and the PTO, 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.

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. The following examples are illustrative:

- others may be able to make compounds that are similar to our product candidates but that are not covered by the claims of our issued patents or any pending patent applications we may have;
- we might not have been the first to make the inventions covered by the issued patents or pending patent applications that we own or co-own;
- we might not have been the first to file patent applications covering an invention;
- others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing our intellectual property rights;
- pending patent applications that we own or co-own may not lead to issued patents;
- the issued patents that we own or any issued patents that we license may not provide us with any competitive advantages, or 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 or in-license additional proprietary technologies that are patentable; and
- the patents of others may have an adverse effect on our business.

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

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

Many of our employees and consultants, including our senior management and our scientific founders, have been employed or retained at universities or by other biotechnology or pharmaceutical companies, including potential competitors. Some of our employees and consultants, including each member of our senior management and each of our scientific founders, executed proprietary rights, non-disclosure and non-competition agreements in connection with such previous employment or retention. Although we try to ensure that our employees and consultants do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or these employees, consultants or independent contractors have used or disclosed intellectual property, including trade secrets or other proprietary information, of any such employee's or consultant's former or other employer. We are not aware of any threatened or pending claims related to these matters or concerning the agreements with our senior management or scientific founders, but in the future litigation may be necessary to defend against such claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or

personnel. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management.

We may be subject to claims challenging the inventorship or ownership of our issued patents, any patents issued as a result of our pending or future patent applications and other intellectual property.

We may also be subject to claims that former employees, collaborators or other third parties have an ownership interest in our issued patents, any patents issued as a result of our pending or future applications or other intellectual property. While we believe we have all rights to any intellectual property related to our product candidates, a third party-contractor may claim they have ownership rights. We have had in the past, and we may also have in the future, ownership disputes arising, for example, from conflicting obligations of consultants or others who are involved in developing our product candidates and technologies. Litigation may be necessary to defend against these and other claims challenging inventorship or ownership.

Some of our intellectual property was generated through government funded programs and thus may be subject to federal regulations such as "march-in" rights, certain reporting requirements and a preference for U.S.-based companies. Compliance with such regulations may limit our exclusive rights and limit our ability to contract with non-U.S. manufacturers.

Some of our intellectual property rights were generated through the use of U.S. government funding and are therefore subject to certain federal regulations. As a result, the U.S. government may have certain rights to intellectual property embodied in our current or future product candidates pursuant to the Bayh-Dole Act of 1980, or Bayh-Dole Act, and implementing regulations. These U.S. government rights in certain inventions developed under a government-funded program include a non-exclusive, non-transferable, irrevocable worldwide license to use inventions for any governmental purpose. In addition, the U.S. government has the right to require us or our licensors to grant exclusive, partially exclusive, or non-exclusive licenses to any of these inventions to a third party if it determines that: (i) adequate steps have not been taken to commercialize the invention; (ii) government action is necessary to meet public health or safety needs; or (iii) government action is necessary to meet requirements for public use under federal regulations (also referred to as "march-in rights"). The U.S. government also has the right to take title to these inventions if we, or the applicable licensor, fail to disclose the invention to the government and fail to file an application to register the intellectual property within specified time limits. These time limits have recently been changed by regulation and may change in the future. Intellectual property generated under a government funded program is also subject to certain reporting requirements, compliance with which may require us or the applicable licensor to expend substantial resources. In addition, the U.S. government requires that any products embodying the subject invention or produced through the use of the subject invention be manufactured substantially in the United States. The manufacturing preference requirement can be waived if the owner of the intellectual property can show that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible. This preference for U.S. manufacturers may limit our ability to contract with non-U.S. product manufacturers for products covered by such intellectual property. To the extent any of our current or future intellectual property is generated through the use of U.S. government funding, the provisions of the Bayh-Dole Act may similarly apply.

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 expect to rely on third parties in the development and manufacture of our product candidates, we must, at times, 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 discovery of our trade secrets or other unauthorized use or disclosure would impair our competitive position and may have an adverse effect on our business and results of operations.

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. 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.

We have not yet registered trademarks for a commercial trade name for our product candidates and failure to secure such registrations could adversely affect our business.

We have not yet registered trademarks for a commercial trade name for our product candidates. During trademark registration proceedings, we may receive rejections. Although we would be given an opportunity to respond to those rejections, we may be unable to overcome such rejections. In addition, in the PTO 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. Moreover, any name we propose to use with our product candidates 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. The FDA typically conducts a review of proposed product names, including an evaluation of potential for confusion with other product names. If the FDA objects to any of our proposed proprietary product names, we 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.

Risks Related to Ownership of our Common Stock

The price of our stock may be volatile, and you could lose all or part of your investment.

Our stock price has fluctuated in the past and is likely to be volatile in the future. The stock market in general and the market for biotechnology companies in particular have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, investors may experience losses on their investment in our common stock. In addition to the factors discussed in these "Risk Factors" and elsewhere in this Quarterly Report on Form 10-Q, these factors include, but are not limited to:

- the success of competitive products or technologies;
- regulatory actions with respect to our product candidates or our competitors' products and product candidates;
- actual or anticipated results in our clinical trials or those of our competitors;
- regulatory or legal developments in the United States and other countries;
- disputes or developments concerning patent applications or other proprietary rights;
- the level of expenses related to any of our product candidates or clinical development programs;
- adverse regulatory decisions;
- our dependence on third parties, including CROs as well as manufacturers;

- our failure to successfully commercialize any of our peptide-based product candidates, if approved;
- additions or departures of key scientific or management personnel;
- variations in our financial results or those of companies that are perceived to be similar to us;
- actual or anticipated variations in quarterly operating results;
- announcement or expectation of additional financing efforts;
- sales of our common stock by us or our stockholders in the future;
- the trading volume of our common stock;
- actual or anticipated changes in estimates as to financial results, timelines or recommendations by analysts;
- changes in the structure of healthcare payment systems;
- conditions or trends in the biotechnology and biopharmaceutical industries; and
- general political and economic conditions.

Volatility in our share price could subject us to securities class action litigation.

Securities class action litigations have often been brought against companies following a decline in the market price of their securities. 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.

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.

Our executive officers, directors and current beneficial owners of 5% or more of our common stock, in the aggregate, beneficially own a significant percentage of our outstanding common stock. These persons, acting together, will be able to significantly influence all matters requiring stockholder approval, including the election and removal of directors and any merger or other significant corporate transactions. The interests of this group of stockholders may not coincide with the interests of other stockholders.

Future sales of our common stock may depress our share price.

Sales of a substantial number of shares of our common stock in the public market, or the perception that these sales might occur, could depress the market price of our common stock and could impair our ability to raise capital through the sale of additional equity securities. At September 30, 2020, we had a total of 37,314,873 shares of common stock outstanding, notwithstanding any potential exercises of outstanding options and issuance of shares under the employee stock purchase plan.

If additional shares of common stock are sold, or if it is perceived that they will be sold, in the public market, the trading price of our common stock could decline.

Any sales of securities by our stockholders could have an adverse effect on the trading price of our common stock. In addition, in the future we may issue common stock or other securities, including sales of common stock pursuant to our Sales Agreement. The number of shares of our new common stock issued in connection with raising additional capital could constitute a material portion of our then outstanding common stock.

We are an "emerging growth company" and as a result of the reduced disclosure and governance requirements applicable to emerging growth companies, our common stock may be less attractive to investors.

We are an "emerging growth company," as defined in the JOBS Act and for as long as we continue to be an "emerging growth company," we intend to take advantage of exemptions from various reporting requirements applicable to other public companies but not to "emerging growth companies," including, but not limited to, not being required to comply with the auditor attestation requirements of Section 404, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and shareholder approval of any golden parachute payments not previously approved. We will remain an emerging growth company, and thus may continue to rely on these exemptions, until the earlier of (1) the last day of the fiscal year (a) following the fifth anniversary of the completion of the IPO, (b) in which we have total annual gross revenue of at least $1.07 billion, or (c) in which we are deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds $700.0 million as of the prior June 30th, and (2) the date on which we have issued more than $1.0 billion in non-convertible debt during the prior three-year period. If some investors find our common stock less attractive as a result of our choices to reduce disclosure, there may be a less active trading market for our common stock, and our stock price may be more volatile.

We are obligated to develop and maintain proper and effective internal controls over financial reporting and any failure to maintain the adequacy of these internal controls may adversely affect investor confidence in our company and, as a result, the value of our common stock.

We are required, pursuant to Section 404 of the Sarbanes-Oxley Act (Section 404), to furnish a report by management on the effectiveness of our internal control over financial reporting. This assessment needs to include disclosure of any material weaknesses identified by our management in our internal control over financial reporting. Our independent registered public accounting firm will not be required to attest to the effectiveness of our internal control over financial reporting until our first Annual Report required to be filed with the SEC following the date we are no longer an "emerging growth company". At such time as we are required to obtain auditor attestation, if we then have a material weakness, we would receive an adverse opinion regarding our internal control over financial reporting from our independent registered accounting firm.

Our compliance with Section 404 requires that we incur substantial accounting expense and expend significant management efforts. We currently do not have an internal audit group, and we will need to hire additional accounting and financial staff with appropriate public company experience and technical accounting knowledge and continue the costly and challenging process of compiling the system and processing documentation necessary to perform the evaluation needed to comply with Section 404. We may not complete our continued evaluation, testing and any required remediation in a timely fashion.

During our evaluation of our internal control, if we identify one or more material weaknesses in our internal control over financial reporting or fail to remediate any material weaknesses, we will be unable to assert that our internal control over financial reporting is effective. We cannot assure you that there will not be material weaknesses in our internal control over financial reporting in the future. Any failure to maintain internal control over financial reporting could severely inhibit our ability to accurately report our financial condition or results of operations. If we are unable to conclude that our internal control over financial reporting is effective, or if our independent registered public accounting firm determines we have a material weakness in our internal control over financial reporting, we could lose investor confidence in the accuracy and completeness of our financial reports, the market price of our ordinary shares could decline, and we could be subject to sanctions or investigations by Nasdaq, the SEC or other regulatory authorities. Failure to remedy any material weakness in our internal control over financial reporting, or to implement or maintain other effective control systems required of public companies, could also restrict our future access to the capital markets.

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

Our disclosure controls and procedures are designed to reasonably assure that information required to be disclosed by us in reports we file or submit under the Exchange Act is accumulated and communicated to management, 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. 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.

During the course of our review and testing, we may identify deficiencies and be unable to remediate them before we must provide the required reports. Furthermore, we may not detect errors on a timely basis and our financial statements may be materially misstated. We or our independent registered public accounting firm may not be able to conclude on an ongoing basis that we have effective internal control over financial reporting, which could harm our operating results, cause investors to lose confidence in our reported financial information and cause the trading price of our stock to fall. In addition, as a public company we are required to file accurate and timely Quarterly and Annual Reports with the SEC under the Exchange Act. Any failure to report our financial results on an accurate and timely basis could result in sanctions, lawsuits, delisting of our shares from The Nasdaq Global Market or other adverse consequences that would materially harm our business.

Any changes to existing accounting pronouncements or taxation rules or practices may cause adverse fluctuations in our reported results of operations or affect how we conduct our business.

A change in accounting pronouncements or taxation rules or practices can have a significant effect on our reported results and may affect our reporting of transactions completed before the change is effective. New accounting pronouncements, taxation rules and varying interpretations of accounting pronouncements or taxation rules have occurred in the past and may occur in the future. The change to existing rules, future changes, if any, or the need for us to modify a current tax or accounting position may adversely affect our reported financial results or the way we conduct our business.

Nasdaq may delist our securities from its exchange, which could limit investors' ability to make transactions in our securities and subject us to additional trading restrictions.

Our common stock is listed on The Nasdaq Global Market. We cannot assure you that, in the future, our securities will meet the continued listing requirements to be listed on The Nasdaq Global Market. If The Nasdaq Global Market delists our common stock, we could face significant material adverse consequences, including:

- a limited availability of market quotations for our securities;
- a determination that our common stock is a "penny stock" which will require brokers trading in our common stock to adhere to more stringent rules and possibly resulting in a reduced level of trading activity in the secondary trading market for our common stock;
- a limited amount of news and analyst coverage for our company; and
- a decreased ability to issue additional securities or obtain additional financing in the future.

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

The trading market for our common stock will be influenced by the research and reports that securities or industry analysts publish about us or our business. In the event one or more of the analysts who cover us downgrade our stock or publish inaccurate or unfavorable research about our business, our stock price could be adversely affected. If one or more of these analysts cease coverage of our company or fail to publish reports on us regularly, demand for our common stock could decrease, and we could lose visibility in the financial markets, which might cause our stock price and trading volume to decline.

Because we do not anticipate paying any cash dividends on our common stock in the foreseeable future, capital appreciation, if any, would be your sole source of gain.

We have never declared or paid any cash dividends on our common stock. We currently anticipate that we will retain future earnings for the development, operation and expansion of our business and do not anticipate declaring or paying any cash dividends for the foreseeable future. As a result, capital appreciation, if any, of our common stock would be your sole source of gain on an investment in our common stock for the foreseeable future.

Provisions in our corporate charter documents could make an acquisition of us more difficult and may prevent attempts by our stockholders to replace or remove our current management.

Provisions in our certificate of incorporation and our bylaws may discourage, delay or prevent a merger, acquisition or other change in control of us that stockholders may consider favorable, including transactions in which stockholders might otherwise receive a premium for their shares. These provisions could also limit the price that investors might be willing to pay in the future for shares of our common stock, thereby depressing the market price of our common stock. In addition, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors. Because our board of directors is responsible for appointing the members of our management team, these provisions could in turn affect any attempt by our stockholders to replace current members of our management team.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware is the exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware will be the exclusive forum for any derivative action or proceeding brought on our behalf; any action asserting a breach of fiduciary duty; any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our amended and restated certificate of incorporation or our bylaws; or any action asserting a claim against us that is 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 of 1933 (the "Securities Act"), as amended, 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. The choice of forum provision 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 such lawsuits against us and our directors, officers and other employees. Alternatively, if a court were to find the choice of forum provision contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could adversely affect our business and financial condition.

Provisions in our corporate charter documents and under Delaware law may prevent or frustrate attempts by our stockholders to change our management or hinder efforts to acquire a controlling interest in us, and the market price of our common stock may be lower as a result.

There are provisions in our certificate of incorporation and bylaws that may make it difficult for a third party to acquire, or attempt to acquire, control of our company, even if a change in control was considered favorable by our stockholders. Our charter documents also contain other provisions that could have an anti-takeover effect, such as:

- our board of directors has the right to elect directors to fill a vacancy created by the expansion of the board of directors or the resignation, death or removal of a director;
- our stockholders may not act by written consent or call special stockholders' meetings;
- our certificate of incorporation does not provide for cumulative voting in the election of directors;
- stockholders must provide advance notice and additional disclosures in order to nominate individuals for election to the board of directors or to propose matters that can be acted upon at a stockholders' meeting; and
- our board of directors may issue, without stockholder approval, shares of undesignated preferred stock.

Moreover, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which prohibit a person who owns 15% or more of our outstanding voting stock from merging or combining with us for a period of three years after the date of the transaction in which the person acquired in excess of 15% of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner. Any provision in our certificate of incorporation or our bylaws or Delaware law that has the effect of delaying or deterring a change in control could limit the opportunity for our stockholders to receive a premium for their shares of our common stock, and could also affect the price that some investors are willing to pay for our common stock.

The comprehensive tax reform bill could adversely affect our business and financial condition.

In December 2017, the Tax Act was enacted which significantly changes the Internal Revenue Code, as amended (the "Code"). The Tax Act, among other things, contains significant changes to corporate taxation, including reduction of the corporate tax rates; limitation of the tax deduction for interest expense for net operating losses generated after 2017; limitation of the deduction to 80% of current year taxable income; indefinite carryforward of net operating losses and elimination of net operating loss carrybacks; changes in the treatment of offshore earnings regardless of whether they are repatriated; mandatory capitalization of research and development expenses beginning in 2022; immediate deductions for certain new investments instead of deductions for depreciation expense over time; further deduction limits on executive compensation; and modifying, repealing and creating many other business deductions and credits, including the reduction in the orphan drug credit from 50% to 25% of qualifying expenditures. We continue to examine the impact this tax reform legislation may have on our business. Notwithstanding the reduction in the corporate income tax rate, the overall impact of the Tax Act is uncertain and our business and financial condition could be adversely affected. The impact of this tax reform on holders of our common stock is also uncertain and could be adverse. This Annual Report does not discuss any such tax legislation or the manner in which it might affect us or our stockholders in the future. We urge our stockholders to consult with their legal and tax advisors with respect to such legislation.

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

We have incurred substantial losses during our history. We do not anticipate generating revenue from sales of products for the foreseeable future, if ever, and we may never achieve profitability. To the extent that we continue to generate taxable losses, unused losses will carry forward to offset future taxable income, if any, until such unused losses expire. Under Section 382 of the Code, if a corporation undergoes an "ownership change" (generally defined as a greater than 50 percentage points change (by value) in its equity ownership over a rolling three-year period), the corporation's ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes to offset its post-change income may be limited. We may experience ownership changes in the future or subsequent shifts in our stock ownership, some of which are outside our control. As of December 31, 2019, we had federal net operating loss

carryforwards of approximately $164.1 million that could be limited if we have experienced, or if in the future we experience, an ownership change, which could have an adverse effect on our future results of operations.

We may have additional tax liabilities.

Our effective income tax rate in the future could be adversely affected by a number of factors, including: interpretations of existing tax laws, changes in tax laws and rates, future levels of research and development expenditures, changes in the valuation of deferred tax assets and liabilities, our ability to use some or all of our accumulated net operating losses, changes in accounting standards and other items. The impact of our income tax provision resulting from these items may be significant and could have a negative impact on our net operating results. We are also subject to non-income based taxes, such as payroll, sales, use, property, and goods and services taxes in the United States. We may have additional exposure to non-income based tax liabilities.

We are regularly subject to audits by tax authorities in the jurisdictions in which we conduct business. Although we believe our tax positions are reasonable, the final outcome of tax audits and related litigation could be materially different than that reflected in our historical income tax provisions and accruals, and we could be subject to assessments of additional taxes and/or substantial fines or penalties. The resolution of any audits or litigation could have an adverse effect on our financial position and results of operations. We and our subsidiary are engaged in intercompany transactions, the terms and conditions of which may be scrutinized by tax authorities, which could result in additional tax and/or penalties becoming due.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

Recent Sales of Unregistered Securities

None.

Repurchases of Shares or of Company Equity Securities

None.

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

None.

ITEM 6. EXHIBITS

EXHIBIT INDEX

Exhibit Number	Exhibit Description	Incorporation By Reference			
		Form	SEC File No.	Exhibit	Filing Date
3.1	Amended and Restated Certificate of Incorporation	8-K	001-37852	3.1	8/16/2016
3.2	Amended and Restated Bylaws	S-1/A	333-212476	3.2	8/1/2016
10.1*	Severance Agreement, dated August 4, 2020, by and between Protagonist Therapeutics, Inc. and Don Kalkofen	10-Q	001-37852	10.1	8/6/2020
31.1+	Certification of Chief Executive Officer required by Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				
31.2+	Certification of Chief Financial Officer required by Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002				
32.1+**	Certification of Chief Executive Officer and Chief Financial Officer, as required by Rule 13a-14(b) or Rule 15d-14(b) and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002				
101.INS+	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+	XBRL Taxonomy Extension Schema Document				
101.CAL+	XBRL Taxonomy Extension Calculation Linkbase Document				
101.DEF+	XBRL Taxonomy Extension Definition Linkbase Document				
101.LAB+	XBRL Taxonomy Extension Labels Linkbase Document				
101.PRE+	XBRL Taxonomy Extension Presentation Linkbase Document				
104	Cover Page Interactive Data File - The cover page interactive data file does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document				

\+ Filed herewith

* Indicates a management contract or compensatory plan or arrangement.

** This certification attached as Exhibit 32.1 that accompanies this Quarterly Report on Form 10-Q is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of Protagonist Therapeutics, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, whether made before or after the date of the Form 10-Q, irrespective of any general incorporation language contained in such filing.

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.

PROTAGONIST THERAPEUTICS, INC.

Date: November 4, 2020

By: /s/ Dinesh V. Patel, Ph.D.
Dinesh V. Patel, Ph.D.
President, Chief Executive Officer and Director
(Principal Executive Officer)

Date: November 4, 2020

By: /s/ Don Kalkofen
Don Kalkofen
Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 31.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Dinesh V. Patel, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Protagonist 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(s) 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 Rules13a-15(f) and 15d-15(f)) for the registrant and we 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(s) 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.

/s/ Dinesh V. Patel, Ph.D.

Date: November 4, 2020

Dinesh V. Patel, Ph.D.
President, Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER
Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Don Kalkofen, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Protagonist 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(s) 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 we 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(s) 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.

/s/ Don Kalkofen

Date: November 4, 2020

Don Kalkofen
Chief Financial Officer

Exhibit 32.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER AND CHIEF FINANCIAL OFFICER

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), Dinesh V. Patel, Chief Executive Officer of Protagonist Therapeutics, Inc. (the "Company"), and Don Kalkofen, Chief Financial Officer of the Company, each hereby certify that, to the best of his knowledge:

1. The Company's Quarterly Report on Form 10-Q for the period ended September 30, 2020, 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: November 4, 2020

/s/ Dinesh V. Patel, Ph.D.
Dinesh V. Patel, Ph.D.
President, Chief Executive Officer

Date: November 4, 2020

/s/ Don Kalkofen
Don Kalkofen
Chief Financial Officer

"This certification accompanies the Form 10-Q to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of Protagonist Therapeutics, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-Q), irrespective of any general incorporation language contained in such filing."