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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, 2019

OR

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

For the transition period from_____ to _____

Commission file number: 001-37500

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

Delaware	**76-0722250**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

460 Totten Pond Road, Suite 530
Waltham, Massachusetts 02451
(Address of principal executive office) (Zip Code)

(617) 928-5300
(Registrant's telephone number, including area code)

Not Applicable
(Former name or former address, if changed since last report)

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, $0.01 par value	**CHMA**	**NASDAQ Global Select Market**

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

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

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

Large accelerated filer ☐ Accelerated filer ☐

Non-accelerated filer ☒ Smaller reporting company ☐

Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☒

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

As of October 31, 2019, there were 42,016,403 shares of the registrant's Common Stock, $0.01 par value per share, outstanding.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q contains forward-looking statements. These statements include all matters that are not related to present facts or current conditions or that are not historical facts, including statements regarding our strategy, future operations, future financial position, future revenue, projected costs, prospects, plans, objectives of management and expected market growth. The words "anticipate," "believe," "could," "continue," "should," "predict," "estimate," "expect," "intend," "may," "plan," "potentially," "will," "would," or the negative of these terms or other similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. These forward-looking statements include, but are not limited to, statements about:

- our efforts to potentially obtain regulatory approval of octreotide capsules in the United States;
- the timing of regulatory filings, including our ability to resubmit our NDA for octreotide capsules by year-end 2019, anticipated six-month regulatory review process, if our resubmitted NDA is determined by FDA as a complete response to its April 2016 complete response letter, and expected commercial launch timing in the United States;
- our development of octreotide capsules, conditionally trade-named MYCAPSSA, for the treatment of acromegaly;
- our efforts to potentially obtain regulatory approval of octreotide capsules in the European Union by conducting the ongoing MPOWERED Phase 3 clinical trial;
- the timing and receipt and announcement of top-line and other clinical data, including our ability to release top-line data from the MPOWERED trial during the second half of 2020;
- the therapeutic benefits, effectiveness and safety of octreotide capsules;
- our estimates of the size and characteristics of the markets that may be addressed by octreotide capsules;
- the commercial success and market acceptance of octreotide capsules or any future product candidates that are approved for marketing in the United States or other countries;
- our ability to generate future revenue;
- the safety and efficacy of therapeutics marketed by our competitors that are targeted to indications which octreotide capsules have been developed to treat;
- our ability to leverage our Transient Permeability Enhancer, or TPE, platform to develop and commercialize novel oral product candidates incorporating peptides that are currently only available in injectable or other non-absorbable forms;
- the possibility that competing products or technologies may make octreotide capsules, other product candidates we may develop and commercialize or our TPE technology obsolete;
- our ability to manufacture sufficient amounts of octreotide capsules for clinical trials and commercialization activities;
- our ability to secure collaborators to license, manufacture, market and sell octreotide capsules or any products for which we receive regulatory approval in the future;
- our ability to protect our intellectual property and operate our business without infringing upon the intellectual property rights of others;
- our product development and operational plans generally; and
- our estimates and expectations regarding our capital requirements, cash and expense levels and liquidity sources.

We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our financial condition, results of operations, business strategy and financial needs. These forward-looking statements are subject to a number of risks, uncertainties and assumptions described in the section titled "Risk Factors" and elsewhere in this Quarterly Report on Form 10-Q and our prior filings with the U.S. Securities and Exchange Commission. Moreover, we operate in a very competitive and rapidly changing environment. New risk factors emerge from time to time, and it is not possible for our management to predict all risk factors nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in, or implied by, any forward-looking statements. Given these uncertainties, you should not place undue reliance on these forward-looking statements. Except as required by law, we assume no obligation to update or revise these forward-looking statements for any reason, even if new information becomes available in the future.

Unless the context requires otherwise, references in this Quarterly Report on Form10-Q to “we,” “us”, “our” and “Chiasma” refer to Chiasma, Inc. and our subsidiaries. We own various U.S. federal trademark registrations and applications, and unregistered trademarks and service marks, including “Chiasma,” “TPE”, “MYCAPSSA” and our corporate logo. Other trademarks or service marks that may appear in this Quarterly Report on Form 10-Q are the property of their respective holders. For convenience, we do not use the ® and ™ symbols in each instance in which one of our trademarks appears throughout this Quarterly Report on Form 10-Q, but this should not be construed as any indication that we will not assert, to the fullest extent under applicable law, our rights thereto. We do not intend to use or display other companies’ trademarks and trade names to imply a relationship with, or endorsement or sponsorship of us by, any other companies.

Chiasma, Inc.

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PART I — FINANCIAL INFORMATION

Item 1. Financial Statements

Chiasma, Inc.
Condensed Consolidated Balance Sheets
(Unaudited)

	September 30, 2019	December 31, 2018
	(in thousands except share data)	
Assets		
Current assets		
Cash and cash equivalents	$ 19,665	$ 13,060
Marketable securities	83,030	28,602
Insurance recovery (Note 9)	—	18,288
Prepaid expenses and other current assets	2,987	2,237
Total current assets	105,682	62,187
Property and equipment, net	209	111
Other assets	992	958
Total assets	$ 106,883	$ 63,256
Liabilities and Stockholders' Equity		
Current liabilities		
Accounts payable	$ 2,737	$ 2,029
Estimated settlement liability (Note 9)	—	18,750
Accrued expenses	6,557	7,848
Other current liabilities	204	—
Total current liabilities	9,498	28,627
Long-term liabilities	645	505
Total liabilities	10,143	29,132
Commitments and contingencies (Note 9)		
Stockholders' equity:		
Common stock, $0.01 par value; authorized 125,000,000 shares at September 30, 2019 and December 31, 2018; issued and outstanding 42,005,465 shares at September 30, 2019 and 24,456,120 shares at December 31, 2018	420	245
Preferred stock, $0.01 par value; authorized 5,000,000 shares; none outstanding	—	—
Additional paid-in capital	357,158	270,509
Accumulated other comprehensive income (loss)	49	(16)
Accumulated deficit	(260,887)	(236,614)
Total stockholders' equity	96,740	34,124
Total liabilities and stockholders' equity	$ 106,883	$ 63,256

See accompanying notes to these unaudited condensed consolidated financial statements.

Chiasma, Inc.
Condensed Consolidated Statements of Operations
(Unaudited)

	For the Three Months Ended September 30,		For the Nine Months Ended September 30,	
	2019	2018	2019	2018
	(in thousands except share and per share data)			
Operating expenses:				
General and administrative	$ 4,116	$ 2,256	$ 9,210	$ 7,317
Research and development	4,110	5,462	16,103	16,630
Total operating expenses	8,226	7,718	25,313	23,947
Loss from operations	(8,226)	(7,718)	(25,313)	(23,947)
Other income, net	(549)	(275)	(1,074)	(785)
Loss before income taxes	(7,677)	(7,443)	(24,239)	(23,162)
Provision for income taxes	6	27	34	24
Net loss	(7,683)	(7,470)	(24,273)	(23,186)
Earnings per share				
Basic	$ (0.20)	$ (0.31)	$ (0.77)	$ (0.95)
Diluted	$ (0.20)	$ (0.31)	$ (0.77)	$ (0.95)
Weighted-average shares outstanding:				
Basic	38,490,768	24,389,666	31,569,731	24,385,328
Diluted	38,490,768	24,389,666	31,569,731	24,385,328

See accompanying notes to these unaudited condensed consolidated financial statements.

Chiasma, Inc.
Condensed Consolidated Statements of Comprehensive Loss
(Unaudited)

	For the Three Months Ended September 30,		For the Nine Months Ended September 30,	
	2019	2018	2019	2018
	(in thousands)			
Net loss	$ (7,683)	$ (7,470)	$ (24,273)	$ (23,186)
Other comprehensive income (loss):				
Unrealized gain (loss) on available for sale securities, net	(3)	21	65	47
Total other comprehensive income (loss):	(3)	21	65	47
Comprehensive loss	$ (7,686)	$ (7,449)	$ (24,208)	$ (23,139)

See accompanying notes to these unaudited condensed consolidated financial statements.

Chiasma, Inc.
Condensed Consolidated Statements of Stockholders' Equity
(Unaudited)

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
	(in thousands except share data)					
Balance, December 31, 2018	24,456,120	$ 245	$270,509	$ (16)	$ (236,614)	$ 34,124
Stock-based compensation	—	—	622	—	—	622
Exercise of stock options	33,839	—	3	—	—	3
Additional paid in capital on account of vested portion of restricted stock	—	—	16	—	—	16
Other comprehensive income	—	—	—	18	—	18
Net loss	—	—	—	—	(8,750)	(8,750)
Balance, March 31, 2019	24,489,959	245	271,150	2	(245,364)	26,033
Stock-based compensation	—	—	627	—	—	627
Exercise of stock options	24,110	—	26	—	—	26
Issuance of common stock in follow-on offering, net	7,263,158	73	32,160	—	—	32,233
Other comprehensive income	—	—	—	50	—	50
Net loss	—	—	—	—	(7,840)	(7,840)
Balance, June 30, 2019	31,777,227	318	303,963	52	(253,204)	51,129
Stock-based compensation	—	—	944	—	—	944
Exercise of stock options	61,811	1	9	—	—	10
Issuance of common stock in follow-on offering, net	10,166,427	101	52,242	—	—	52,343
Other comprehensive loss	—	—	—	(3)	—	(3)
Net loss	—	—	—	—	(7,683)	(7,683)
Balance, September 30, 2019	42,005,465	$ 420	$357,158	$ 49	$ (260,887)	$ 96,740

See accompanying notes to these unaudited condensed consolidated financial statements.

Chiasma, Inc.
Condensed Consolidated Statements of Stockholders' Equity
(Unaudited)

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
	(in thousands except share data)					
Balance, December 31, 2017	24,381,605	$ 244	$267,642	$ (59)	$ (205,353)	$ 62,474
Stock-based compensation	—	—	637	—	—	637
Exercise of stock options	2,389	—	—	—	—	—
Additional paid in capital on account of vested portion of restricted stock	—	—	25	—	—	25
Other comprehensive loss	—	—	—	(36)	—	(36)
Net loss	—	—	—	—	(7,043)	(7,043)
Balance, March 31, 2018	24,383,994	244	268,304	(95)	(212,396)	56,057
Stock-based compensation	—	—	728	—	—	728
Exercise of stock options	2,389	—	—	—	—	—
Additional paid in capital on account of vested portion of restricted stock	—	—	26	—	—	26
Other comprehensive income	—	—	—	62	—	62
Net loss	—	—	—	—	(8,673)	(8,673)
Balance, June 30, 2018	24,386,383	244	269,058	(33)	(221,069)	48,200
Stock-based compensation	—	—	735	—	—	735
Exercise of stock options	44,160	—	4	—	—	4
Additional paid in capital on account of vested portion of restricted stock	—	—	25	—	—	25
Other comprehensive income	—	—	—	21	—	21
Net loss	—	—	—	—	(7,470)	(7,470)
Balance, September 30, 2018	24,430,543	$ 244	$269,822	$ (12)	$ (228,539)	$ 41,515

See accompanying notes to these unaudited condensed consolidated financial statements.

Chiasma, Inc.
Condensed Consolidated Statements of Cash Flows
(Unaudited)

	Nine Months Ended September 30,	
	2019	2018
	(in thousands)	
Operating Activities:		
Net loss	$ (24,273)	$ (23,186)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:		
Depreciation	42	69
Stock-based compensation	2,193	2,100
Accretion on marketable securities, net	(414)	(271)
Amortization of right-of-use asset	135	—
Non-cash interest expense	—	5
Benefit for deferred income taxes	(18)	(3)
Changes in operating assets and liabilities:		
Prepaid expenses and other current assets	(526)	637
Insurance recovery (Note 9)	18,288	—
Accounts payable and accrued expenses	(1,924)	3,241
Settlement liability (Note 9)	(18,750)	—
Other assets	53	5
Other current and long-term liabilities	(67)	(50)
Net cash used in operating activities	(25,261)	(17,453)
Investing Activities:		
Purchases of marketable securities	(97,000)	(33,306)
Maturities of marketable securities	43,051	49,027
Purchases of property and equipment	(140)	(6)
Net cash provided by (used in) investing activities	(54,089)	15,715
Financing Activities:		
Proceeds from the issuance of common stock, net	84,576	—
Exercise of stock options	39	4
Payment under license termination agreement	—	(1,700)
Proceeds from short-term borrowing	1,675	—
Payments of short-term borrowing	(335)	—
Net cash provided by (used in) financing activities	85,955	(1,696)
Net increase (decrease) in cash and cash equivalents	6,605	(3,434)
Cash and cash equivalents, beginning of period	13,060	14,603
Cash and cash equivalents, end of period	$ 19,665	$ 11,169

See accompanying notes to these unaudited condensed consolidated financial statements.

CHIASMA, INC.
Notes to Unaudited Condensed Consolidated Financial Statements
September 30, 2019

1. Description of Business and Summary of Significant Accounting Policies

Chiasma, Inc. is a clinical-stage biopharmaceutical company incorporated in 2001 under the laws of the State of Delaware. Chiasma, Inc. is headquartered in Massachusetts and has two wholly owned subsidiaries; Chiasma (Israel) Ltd., and Chiasma Securities Corp, collectively referred to as "the Company," "we," "us," "our" or "Chiasma". We are a clinical-stage biopharmaceutical company focused on improving the lives of patients who face challenges associated with their existing treatments for rare and serious chronic disease. Employing our proprietary Transient Permeability Enhancer ("TPE") technology platform, we seek to develop oral medications that are currently available only as injections. We are currently developing oral octreotide capsules, conditionally trade-named "MYCAPSSA", our TPE platform-based clinical product candidate, for the treatment of acromegaly. In July 2019, we reported positive top-line data from our second completed Phase 3 clinical trial of octreotide capsules in adult patients for the treatment of acromegaly. The trial, referred to as CHIASMA OPTIMAL, was a randomized, double-blind, placebo-controlled, nine-month trial that enrolled 56 adult acromegaly patients. We initiated this trial following our agreement with the United States Food and Drug Administration ("FDA") on the design of the trial, reached through a Special Protocol Assessment in August 2017.

Acromegaly is a rare and debilitating condition that results in the body's production of excess growth hormone. Octreotide is an analog of somatostatin, a natural inhibitor of growth hormone secretion. Octreotide capsules have been granted orphan designation in the United States and the European Union for the treatment of acromegaly. We retain worldwide rights to develop and commercialize octreotide capsules with no royalty obligations to third parties.

We are also currently conducting an international Phase 3 clinical trial, referred to as MPOWERED, of oral octreotide capsules for the maintenance treatment of adult patients with acromegaly to support regulatory approval in the European Union by the European Medicines Agency ("EMA"). The MPOWERED trial is a global, randomized, open-label and active-controlled 15-month trial initially designed to enroll up to 150 patients. The EMA requested that a minimum of 80 patients who are responders to octreotide capsules per the protocol following the six-month run-in phase be randomized to either remain on octreotide capsules or return to injectable somatostatin receptor ligands (octreotide or lanreotide), and then followed for an additional nine months. In June 2019, we completed the enrollment of 146 total patients in MPOWERED.

Liquidity

We have incurred significant losses from operations since our inception and expect losses to continue for at least the next several years. We are heavily dependent on the regulatory approval and subsequent commercial success of our product candidate, octreotide capsules for the treatment of acromegaly, in the United States and European Union, both of which may never occur.

We expect to continue with the open label extension portion of our international Phase 3 CHIASMA OPTIMAL clinical trial of octreotide capsules in acromegaly and our ongoing international Phase 3 MPOWERED clinical trial of octreotide capsules in acromegaly to support potential regulatory approval in the European Union. We continue to focus our resources on the development of octreotide capsules and have initiated pre-commercial activities in anticipation of a potential mid-2020 FDA marketing approval of octreotide capsules for the maintenance treatment of adult acromegaly patients. We currently expect our existing cash, cash equivalents and marketable securities to fund our operations for at least one year after the date these condensed consolidated financial statements are issued. We expect to continue to incur significant operating losses for the foreseeable future.

Successful transition to attaining profitable operations is dependent upon achieving a level of revenues adequate to support our cost structure. We plan to continue to fund our losses from operations and capital funding needs from existing balances of cash, cash equivalents and marketable securities and potentially through the issuance of debt and/or equity or through collaborations or license agreements with other companies. Debt or equity financing may not be available on a timely basis on terms acceptable to us, or at all. If we are not able to secure adequate additional funding, we may be forced to make reductions in spending, extend payment terms with suppliers, liquidate assets where possible, suspend or curtail our planned development of octreotide capsules, or delay our commercial preparations or launch readiness even if octreotide capsules are approved by the FDA or EMA. Any of these actions could materially harm our business, results of operations and future prospects. Failure to obtain regulatory approval of octreotide capsules in acromegaly will prevent us from commercializing the product candidate, which could raise significant concerns about our continued viability as a business.

On April 2, 2019, we completed a follow-on underwritten public offering of 6,315,790 shares of common stock at a public offering price of $4.75 per share, before underwriting discounts and commissions, and on April 3, 2019, we closed on the sale of an additional 947,368 shares of common stock pursuant to the underwriters' option at a public offering price of $4.75 per share, before underwriting discounts and commissions. Aggregate gross proceeds were $34.5 million while net proceeds received after underwriting fees and offering expenses were approximately $32.2 million.

On July 30, 2019, we completed a follow-on underwritten public offering of 10,000,000 shares of common stock at a public offering price of $5.50 per share, before underwriting discounts and commissions and on August 23, 2019, we closed on the sale of an additional 166,427 shares of common stock pursuant to the underwriters' option at a public offering price of $5.50 per share, before underwriting discounts and commissions. Aggregate gross proceeds were $55.9 million while net proceeds received after underwriting fees and offering expenses were approximately $52.3 million.

These offerings were made pursuant to a prospectus dated March 22, 2018 and prospectus supplements dated March 29, 2019 and July 26, 2019, respectively, in connection with drawdowns from our shelf registration statement on Form S-3, which the U.S. Securities and Exchange Commission ("SEC") declared effective on May 3, 2018.

Basis of Presentation

We have prepared the accompanying unaudited condensed consolidated financial statements pursuant to the rules and regulations of the SEC regarding interim financial reporting. Accordingly, certain information and footnote disclosures required by accounting principles generally accepted in the United States ("U.S. GAAP") for annual financial statements have been condensed or omitted. The information included in this quarterly report on Form 10-Q should be read in conjunction with our Annual Report on Form10-K for the year ended December 31, 2018. Theyear-end condensed consolidated balance sheet data presented for comparative purposes was derived from our audited financial statements but does not include all disclosures required by U.S. GAAP. In the opinion of management, we have prepared the accompanying unaudited condensed consolidated financial statements on the same basis as our audited financial statements, and these financial statements include all adjustments, consisting only of normal recurring adjustments, necessary for a fair presentation of the results of the interim periods presented. Interim results are not necessarily indicative of results for a full year or for any other subsequent interim period.

Cash Equivalents

Cash equivalents consist of highly liquid instruments that mature within three months or less from the date of purchase.

Marketable Securities

Our investments primarily consist of commercial paper and corporate and government debt securities. These marketable securities are classified as available-for-sale, and as such, are reported at fair value on our condensed consolidated balance sheets. Unrealized holding gains and losses are reported within accumulated other comprehensive income (loss) as a separate component of stockholders' equity. The amortized cost of debt securities is adjusted for amortization of premiums and accretion of discounts to maturity. Such amortization, together with interest on securities, are included in other income, net, on our condensed consolidated statements of operations.

If a decline in the fair value of a marketable security below our cost basis is determined to be other than temporary, such marketable security is written down to its estimated fair value as a new cost basis and the amount of the write-down is included in earnings as an impairment charge. The cost of securities sold is based on the specific identification method.

Concentrations of credit risk

Financial instruments that potentially subject us to significant concentration of credit risk consist primarily of cash, cash equivalents and marketable securities. We routinely maintain deposits in financial institutions in excess of government insured limits. Management believes that we are not exposed to significant credit risk as our deposits are held at financial institutions that management believes to be of high credit quality and we have not experienced any significant losses in these deposits. We regularly invest excess operating cash in deposits with major financial institutions and money market funds and in notes issued by the U.S. government, as well as in fixed income investments and U.S. bond funds, both of which can be readily purchased and sold using established markets. We believe that the market risk arising from our holdings of these financial instruments is mitigated based on the fact that many of these securities are either government backed or of high credit rating.

Use of Estimates

The preparation of condensed consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, and expenses, and the disclosure of contingent assets and liabilities as of and during the reporting period. We base these estimates and assumptions on historical experience when available, and on various factors that we believe to be reasonable under the specific circumstances. Significant estimates relied upon in preparing the accompanying condensed consolidated financial statements include, but are not limited to, accounting for stock-based compensation, income taxes, and accounting for certain accruals. We assess the above estimates on an ongoing basis; however, actual results could materially differ from those estimates.

Recently Issued Accounting Pronouncements

In February 2016, the Financial Accounting Standards Board ("FASB") issued new guidance which establishes aright-of-use model that requires a lessee to record an asset and a lease liability on the balance sheet for all leases with terms longer than 12 months. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition in the income statement. A modified retrospective approach, which includes a number of optional practical expedients, is required for lessees for capital and operating leases existing at, or entered into after, the beginning of the earliest comparative period presented in the financial statements. On January 1, 2019, we adopted this standard using a modified retrospective approach. As of January 1, 2019, we recorded a right-of-use asset of $0.3 million and an operating lease liability of $0.3 million. For additional information regarding how we are accounting for leases under this standard refer to Note 10.

In June 2018, the FASB issued new guidance which changes certain aspects of the accounting for share-based payments granted to nonemployees. Under this guidance, most of the treatment for share-based payments granted to nonemployees would be aligned with the requirements for share-based payments granted to employees. The new standard is effective beginning January 1, 2019. We adopted this standard on January 1, 2019 and thus ceased the re-measurement of non-employee awards. The adoption of this standard did not have a material impact on our condensed consolidated financial statements.

In June 2016, the FASB issued new guidance which will require more timely recording of credit losses on loans and other financial instruments held by financial institutions and other organizations. The new guidance requires the measurement of all expected credit losses for financial assets held at the reporting date based on historical experience, current conditions and reasonable and supportable forecasts. The new guidance also requires enhanced disclosures regarding significant estimates and judgments used in estimating credit losses. This guidance is effective January 1, 2020 and early adoption of this standard is permitted. We plan to adopt this standard on January 1, 2020. We believe the adoption of this standard will not have a material impact on our condensed consolidated financial statements.

2. Investments

Our investments consisted of the following as of September 30, 2019 and December 31, 2018:

	As of September 30, 2019			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
	($ in thousands)			
Money market funds	$ 18,045	$ —	$ —	$ 18,045
Government notes	3,000	—	—	3,000
Corporate notes	52,453	27	—	52,480
Commercial paper	27,528	26	(4)	27,550
Total	$ 101,026	$ 53	$ (4)	$ 101,075

	As of December 31, 2018			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
	($ in thousands)			
Money market funds	$ 11,612	$ —	$ —	$ 11,612
Corporate notes	7,234	—	(3)	7,231
Commercial paper	21,384	—	(13)	21,371
Total	$ 40,230	$ —	$ (16)	$ 40,214

As of September 30, 2019, we do not consider those securities that are in an unrealized loss position to be other-than-temporarily impaired, as we have the ability to hold such investments until recovery of the fair value. We utilize the specific identification method in computing realized gains and losses. We had no realized gains and losses on our available-for-sale securities for the three and nine months ended September 30, 2019 or 2018.

The fair values of our investments by classification in our condensed consolidated balance sheets as of September 30, 2019 and December 31, 2018 were as follows:

	September 30, 2019	December 31, 2018
	($ in thousands)	
Cash and cash equivalents	$ 18,045	$ 11,612
Marketable securities	83,030	28,602
Total	$ 101,075	$ 40,214

Cash and cash equivalents in the table above exclude cash of $1.6 million and $1.4 million as of September 30, 2019 and December 31, 2018, respectively. The contractual maturity dates of all of our investments are less than one year.

3. Fair Value Measurements of Financial Instruments

Certain assets and liabilities are reported at fair value on a recurring basis. Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants at the measurement date. The fair value accounting guidance requires that assets and liabilities carried at fair value be classified and disclosed in one of the following three categories:

- *Level 1* — Quoted prices in active markets for identical assets or liabilities that we have the ability to access at the measurement date.
- *Level 2* — Inputs other than quoted prices in active markets that are observable for the asset or liability, either directly or indirectly.
- *Level 3* — Inputs that are unobservable for the asset or liability.

To the extent that valuation is based on models or inputs that are less observable or unobservable in the market, the determination of fair value requires more judgment. Accordingly, the degree of judgment exercised by us in determining fair value is greatest for instruments categorized in Level 3. A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement.

The fair value measurements of our financial instruments are summarized in the table below:

	Fair Value Measurements at September 30, 2019			
	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
		($ in thousands)		
Cash equivalents:				
Money market funds	$ 18,045	$ —	$ —	$ 18,045
Total cash equivalents	$ 18,045	$ —	$ —	$ 18,045
Marketable securities:				
Government notes	$ —	$ 3,000	$ —	$ 3,000
Corporate notes	—	52,480	—	52,480
Commercial paper	—	27,550	—	27,550
Total marketable securities	—	83,030	—	83,030
Total	$ 18,045	$ 83,030	$ —	$101,075

	Fair Value Measurements at December 31, 2018			
	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
		($ in thousands)		
Cash equivalents:				
Money market funds	$ 11,612	$ —	$ —	$11,612
Total cash equivalents	$ 11,612	$ —	$ —	$11,612
Marketable securities:				
Corporate notes	$ —	$ 7,231	$ —	$ 7,231
Commercial paper	—	21,371	—	21,371
Total marketable securities	—	28,602	—	28,602
Total	$ 11,612	$ 28,602	$ —	$40,214

Our cash equivalents are classified as Level 1 assets under the fair value hierarchy as these assets have been valued using quoted market prices in active markets and do not have any restrictions on redemption. Our marketable securities are classified as Level 2 assets under the fair value hierarchy as these assets were primarily determined from independent pricing services, which normally derive security prices from recently reported trades for identical or similar securities, making adjustments based upon other significant observable market transactions. At the end of each reporting period, we perform quantitative and qualitative analysis of prices received from third parties to determine whether prices are reasonable estimates of fair value. After completing our analysis, we did not adjust or override any fair value measurements provided by our pricing services as of September 30, 2019 or December 31, 2018. We did not have any Level 3 assets being measured at fair value on a recurring basis as of September 30, 2019 and December 31, 2018.

4. Earnings per Share of Common Stock

All common stock warrants and stock options have been excluded from the computation of diluted weighted-average shares outstanding because such securities would have an anti-dilutive impact due to net losses reported during the three and nine months ended September 30, 2019 and 2018.

5. Accrued Expenses

As of September 30, 2019 and December 31, 2018, accrued expenses consisted of the following:

	September 30, 2019	December 31, 2018
	($ in thousands)	
Accrued general and administrative expenses	$ 586	$ 2,120
Accrued research and development expenses	3,413	4,557
Accrued payroll and employee benefits	1,218	1,171
Short-term borrowing	1,340	—
Total accrued expenses	$ 6,557	$ 7,848

6. License Agreement

In December 2012, we signed a license agreement with F.Hoffmann-La Roche Ltd. and Hoffmann-La Roche Inc. (collectively "Roche"), which was effective in January 2013, and granted Roche an exclusive, non-transferable license to our intellectual property related to octreotide capsules. In July 2014, Roche terminated the license agreement. Subsequent to the termination, we purchased from Roche active pharmaceutical ingredient ("API") supplies to continue the development and manufacturing of octreotide capsules as well as Roche's proposed trade name for octreotide capsules for an aggregate amount of $5.1 million payable in three equal annual installments of $1.7 million beginning in 2016. We made the final $1.7 million annual payment in March 2018. Roche has no remaining rights to octreotide capsules and we retain all rights to octreotide capsules and all related intellectual property. We have no further financial or operational obligations to Roche.

7. Warrants

As of December 31, 2018, there were 3,567,015 common stock warrants outstanding with exercise prices ranging from $0.09 per share to $9.13 per share. Such warrants were issued between October 2012 and February 2015 with expiration dates ranging from March 2022 through December 2024. There were no warrants issued or exercised during the nine months ended September 30, 2019. There were 3,567,015 outstanding warrants as of September 30, 2019.

8. Stock Incentive Plans

In 2008, our board of directors adopted the 2008 Stock Incentive Plan (the "2008 Plan"), which provided for the grant of incentive stock options, nonqualified stock options, and restricted stock to employees, directors, and nonemployees of the Company up to 3,547,741 shares of common stock. Option awards expire 10 years from the grant date and generally vest over four years but vesting conditions can vary at the discretion of our board of directors.

In July 2015, the Company approved the 2015 Stock Option and Incentive Plan (the "2015 Plan"), which became effective upon our initial public offering. The 2015 Plan allow the grant of incentive stock options, nonqualified stock options, and restricted stock to employees, directors, and nonemployees of the Company initially up to 3,566,296 shares of common stock. In connection with the adoption of the 2015 Plan, no further option grants were permitted under the 2008 Plan and any expirations, cancellations, or terminations under the 2008 Plan are available for issuance under the 2015 Plan. On January 1, 2019, the number of shares reserved and available for issuance under the 2015 Stock Plan increased by 978,245 shares of common stock pursuant to a provision in the 2015 Stock Plan that provides that the number of shares reserved and available for issuance will automatically increase each January 1, beginning on January 1, 2016, by 4% of the number of shares of common stock issued and outstanding on the immediately preceding December 31 or such lesser number as determined by the compensation committee of the board of directors. The compensation committee of the board of directors determined there would be no increase to the shares reserved and available under the 2015 Stock Plan on January 1, 2018. As of September 30, 2019, the total number of shares authorized for stock award plans is 8,092,282 of which 1,498,725 remain available for grant. There are 6,085,026 stock options outstanding as of September 30, 2019.

Stock-based compensation for the three and nine months ended September 30, 2019 and 2018 consisted of the following:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2019	2018	2019	2018
	($ in thousands)			
General and administrative	$ 702	$ 393	$ 1,373	$ 1,094
Research and development	242	342	820	1,006
Total	$ 944	$ 735	$ 2,193	$ 2,100

The fair value of each stock option issued was estimated at the date of grant using the Black-Scholes option model with the following weighted-average assumptions:

	Nine Months Ended September 30,	
	2019	2018
Expected volatility	97%	77%
Expected term (years)	6.0	6.2
Risk-free interest rate	2.03%	2.72%
Expected dividend yield	0%	0%

We granted approximately 1,832,000 stock options in the nine months ended September 30, 2019. The weighted-average grant date fair value per share of stock options granted during the nine months ended September 30, 2019 was $5.05. We granted approximately 840,000 stock options in the nine months ended September 30, 2018. The weighted-average grant date fair value per share of options granted during the nine months ended September 30, 2018 was $1.04.

9. Commitments and Contingencies

Manufacturing Commitments

As of September 30, 2019, we had outstanding purchase orders for the acquisition of API in the aggregate amount of $5.6 million. The payments on these orders will occur following the deliveries of the API which are anticipated during 2020.

Legal Proceedings

On June 9, 2016, Chiasma, Inc. and certain of our current and former officers were named as defendants in a purported federal securities class action lawsuit filed in the United States District Court for the District of Massachusetts, styled *Gerneth v. Chiasma, Inc., et al.* An amended complaint was filed by the lead plaintiff on February 10, 2017 challenging our statements regarding our first Phase 3 clinical trial methodology and results, and our ability to obtain FDA approval for octreotide capsules, in violation of Sections 11 and 15 of the Securities Act of 1933. The amended complaint added as defendants current and former members of our board of directors, as well as the investment banks that underwrote our initial public offering on July 15, 2015. The plaintiff sought an unspecified amount of compensatory damages on behalf of himself and members of a putative shareholder class, including interest and reasonable costs and expenses incurred in litigating the action, and any other relief the court determines is appropriate. The defendants filed a motion to dismiss the amended complaint on March 27, 2017 and on February 15, 2018, the court denied defendants' motion to dismiss. The defendants filed an answer to the amended complaint on March 30, 2018. On February 27, 2019, the parties agreed to a settlement of all legal claims in which defendants expressly denied that they have committed any act or omission giving rise to any liability under Sections 11 or 15 of the Securities Act of 1933. On March 14, 2019, the court issued an order of preliminary approval of the settlement. As a result of this settlement agreement, we have recorded a litigation settlement liability of $18.8 million as of December 31, 2018. Additionally, we have recorded a litigation insurance settlement recovery receivable of $18.3 million as of December 31, 2018 which represents the estimated insurance claim proceeds from our insurance carriers. On June 27, 2019, the court issued an order of final approval of the settlement. The litigation insurance settlement recovery and litigation settlement liability were settled during the three months ended June 30, 2019.

10. Leases

We adopted the new lease standard on January 1, 2019. We elected a package of practical expedients, which include: (i) an entity need not reassess whether any expired or existing contracts are or contain leases; (ii) an entity need not reassess the lease classification for any expired or existing leases; and (iii) an entity need not reassess any initial direct costs for any existing leases. Another practical expedient allows us to use hindsight in determining the lease term when considering lessee options to extend or terminate the lease and to purchase the underlying asset. We have elected to utilize this package of practical expedients and have not elected the hindsight methodology in its implementation of the lease standard. We elected to adopt this standard using the optional modified retrospective transition method and therefore comparative periods have not been restated. We have elected to not recognize right-of-use assets and lease liabilities arising from short-term leases, which are leases that, at the commencement date, have a lease term of 12 months or less and do not include an option to purchase the underlying asset that the lessee is reasonably certain to exercise.

We determine if an arrangement is a lease at inception. We have operating leases for our office spaces and certain automobiles. Operating lease right-of-use assets and operating lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term at the commencement date. The operating lease right-of-use asset also includes direct costs incurred and is reduced by lease incentives. Lease agreements with lease and non-lease components are accounted for separately. As our leases do not provide an implicit rate, we use an estimated incremental borrowing rate based on the information available at the commencement date in determining the present value of future payments. We recognize operating lease expense on a straight-line basis over the lease term.

	Three Months Ended September 30, 2019	Nine Months Ended September 30, 2019
	($ in thousands)	
The components of lease expense were as follows:		
Operating lease expense	$ 58	$ 159
Supplemental cash flow information related to leases was as follows:		
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows from operating leases	$ 54	$ 154
Right-of-use assets obtained in exchange for lease obligations:		
Operating leases	$ —	$ 113

	September 30, 2019 ($ in thousands)
Supplemental balance sheet information related to leases was as follows:	
Operating lease right-of-use assets	$ 293
Other current liabilities	$ 204
Long-term liabilities	81
Total operating lease liabilities	$ 285
Weighted average remaining lease term - operating leases	19 Months
Weighted average discount rate - operating leases	8.3%

Our operating lease right-of-use assets are recorded within other assets on our condensed consolidated balance sheets.

Future lease payments under noncancelable leases as of September 30, 2019 are as follows:

	($ in thousands)
Remainder of 2019	$ 54
2020	199
2021	43
2022	9
Total future minimum lease payments	305
Less: imputed interest	(20)
Total	$ 285

In October 2019, we entered into a sublease agreement for office space with a total commitment of approximately $1.4 million over a three-year term. We were required to provide the sublandlord with a security deposit in the amount of $0.1 million.

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our unaudited condensed consolidated financial statements and the accompanying notes thereto included elsewhere in this Quarterly Report on Form 10-Q and the audited financial information and the notes thereto included in our Annual Report on Form 10-K for the year ended December 31, 2018. Some of the information contained in this discussion and analysis or set forth elsewhere in this Quarterly Report on Form 10-Q, including information with respect to our plans and strategy for our business and related financing, includes forward-looking statements that involve risks and uncertainties. As a result of many factors, including those factors set forth in the "Risk Factors" section of this Quarterly Report on Form 10-Q and our prior filings with the SEC, our actual results could differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Overview

We are a clinical-stage biopharmaceutical company focused on improving the lives of patients who face challenges associated with their existing treatments for rare and serious chronic disease. Employing our proprietary Transient Permeability Enhancer, or TPE, technology platform, we seek to develop oral medications that are currently available only as injections. We are developing oral octreotide capsules, conditionally trade-named MYCAPSSA, our TPE platform-based clinical product candidate, for the treatment of acromegaly. In July 2019, we announced positive top-line results from CHIASMA OPTIMAL, the second Phase 3 clinical trial we have completed of octreotide capsules for the maintenance therapy of adult patients with acromegaly. Based on the results from CHIASMA OPTIMAL, we plan to resubmit our New Drug Application, or NDA, by year-end 2019. We expect the United States Food and Drug Administration, or the FDA, will aim to complete its review of our anticipated NDA, if accepted for filing, within six months based on our expectation that the NDA will be designated a Class 2 resubmission by the FDA to address its April 2016 complete response letter, or CRL, to our original NDA.

Acromegaly is a rare and debilitating condition that results from the body's production of excess growth hormone, which in turn elevates insulin-like growth factor 1, or IGF-1. These elevated hormone levels result in a number of painful and disfiguring symptoms, including some acute, such as headaches, joint pain and fatigue, and some long-term, such as enlarged hands, feet and internal organs, as well as altered facial features. If not treated promptly, acromegaly can lead to serious illness and is associated with premature death, primarily due to cardiovascular disease. Octreotide is an analog of somatostatin, a natural inhibitor of growth hormone secretion. The current standard of care for patients diagnosed with acromegaly and not otherwise cured by surgical removal of the pituitary tumor consists of lifelong, once-monthly injections of an extended release somatostatin analog. We believe that octreotide capsules, if approved by regulatory authorities, will be the first somatostatin analog available for oral administration. Octreotide capsules have been granted orphan designation in the United States and the European Union for the treatment of acromegaly. The worldwide market for injectable somatostatin analogs is approximately $2.7 billion annually, of which we estimate approximately $810 million represents annual sales for the treatment of acromegaly. We retain worldwide rights to develop and commercialize octreotide capsules with no royalty obligations to third parties.

Our CHIASMA OPTIMAL trial was a randomized, double-blind, placebo-controlled, nine-month clinical trial of octreotide capsules that was conducted under a special protocol assessment, or SPA, agreement with the FDA. The trial enrolled 56 adult acromegaly patients whose disease was biochemically controlled by injectable somatostatin analogs (average IGF-1 $\leq 1.0 \times$ upper limit of normal, or ULN). The patients also had confirmed active acromegaly following their last surgical intervention based upon an elevated IGF-1 at that time of $\geq 1.3 \times$ ULN. Patients were randomized on a 1:1 basis, to octreotide capsules or placebo. Patients were dose titrated from 40 mg per day (equaling one capsule in the morning and one capsule in the evening) to up to a maximum of 80 mg per day (equaling two capsules in the morning and two capsules in the evening). Patients who met the predefined withdrawal criteria, or discontinued from oral treatment for any reason, in either treatment arm during the course of the trial were considered treatment failures and reverted to their original treatment of injections and monitored for the remainder of the trial. The primary endpoint of the trial was the proportion of patients who maintained their biochemical response at the end of the nine-month, double-blind, placebo-controlled period as measured using the average of the last two IGF-1 levels $\leq 1.0 \times$ ULN (assessed at weeks 34 and 36). Hierarchical secondary endpoints that are expected to be considered by the FDA in evaluating the totality of evidence for octreotide capsules treatment include: proportion of patients who maintain growth hormone, or GH, response at week 36 compared to screening; time to loss of response: IGF-1 of 2 consecutive visits is $> 1.0 \times$ ULN; time to loss of response:IGF-1 of 2 consecutive visits is $\geq 1.3 \times$ ULN; and proportion of patients requiring rescue treatment.

In the CHIASMA OPTIMAL trial:

- The primary endpoint was met: 58% of the patients on octreotide capsules maintained theirIGF-1 response compared to 19% of the patients on placebo (p = 0.008).
- All secondary endpoints were met.
  - 78% of patients treated with octreotide capsules maintained their GH levels below 2.5 ng/mL at the end of the core study vs. 30% of patients treated with placebo (p = 0.001).
  - Median time to loss of response (IGF-1 >1.0 × ULN) was not reached (>36 weeks) for patients treated with octreotide capsules vs. 16 weeks for patients treated with placebo (p <0.001).
  - Median time to loss of response (IGF-1 ≥ 1.3 × ULN) was not reached (>36 weeks) for patients treated with octreotide capsules vs. 16 weeks for patients treated with placebo (p <0.001).
  - 25% of patients treated with octreotide capsules required rescue medication with injectable somatostatin analogs (octreotide LAR or lanreotide depot) anytime throughout the study vs. 68% of patients treated with placebo (p = 0.003).
- Additionally, 75% of patients on octreotide capsules completed the trial of which 90% elected to continue into the open label extension.

Additionally, in a pre-specified exploratory endpoint, mean IGF-1 values across all 28 patients treated with octreotide capsules (including primary endpoint non-responders per protocol), remained within normal limits with a 0.97 x ULN at the end of oral treatment versus 1.69 x ULN at the end of treatment for the patients on placebo.

In the CHIASMA OPTIMAL trial, octreotide capsules appeared safe and well tolerated. No new or unexpected safety signals were observed. The overall number of treatment emergent adverse events, or TEAEs, was comparable between the octreotide capsules and placebo treatment groups. Two patients on octreotide capsules and one patient on placebo discontinued treatment due to TEAEs. Two patients on octreotide capsules and one patient on placebo had serious adverse events, or SAEs, assessed as not related to study drug. Severe TEAEs as well as TEAEs of special interest (acromegaly symptoms) were more common in placebo treated patients than in patients treated with octreotide capsules. The following table summarizes the safety data observed in CHIASMA OPTIMAL:

	Octreotide Capsules		Placebo	
Subjects with:	**n**	**%**	**n**	**%**
At least one TEAE	28	100.0	27	96.4
Treatment-Related TEAE	18	64.3	15	53.6
SAEs	2	7.1	1	3.6
Treatment-Related SAEs	0	0.0	0	0.0
Severe TEAEs	3	10.7	7	25.0
TEAE Leading to Study Drug Discontinuation	2	7.1	1	3.6
TEAEs of Special Interest (acromegaly symptoms)	15	53.6	26	92.9

We plan to submit an NDA byyear-end 2019 for octreotide capsules for the maintenance treatment of adults with acromegaly. The CHIASMA OPTIMAL trial was conducted under a SPA agreement with the FDA, which indicates that the FDA agreed that the design and planned analysis of the CHIASMA OPTIMAL results adequately address the objectives necessary to support a regulatory submission. However, a SPA is not a guarantee of regulatory approval. We anticipate that the FDA will review the totality of the data collected from the CHIASMA OPTIMAL trial, including both primary and secondary endpoints, together with certain data from our other clinical trials of octreotide capsules, including but not limited to data related to the loss of biochemical response when switching from injectable somatostatin analogs to octreotide capsules, in evaluating any NDA. We continue to believe that the data from the CHIASMA OPTIMAL trial alone is designed to address the clinical concerns raised by the FDA in its CRL to our first NDA submission and that the FDA only expects to review safety data from our MPOWERED trial as part of its review of our planned NDA resubmission. We anticipate that our planned NDA resubmission will be classified by the FDA for a six-month review period. Any future requirement by the FDA to submit additional data including the efficacy data from our MPOWERED clinical trial as part of our planned NDA resubmission may delay or prevent the filing, review or approval of our NDA.

We are also conducting an international Phase 3 clinical trial, referred to as MPOWERED, of oral octreotide capsules for the maintenance treatment of adult patients with acromegaly to support regulatory approval in the European Union. The MPOWERED trial is a randomized, open-label and active-controlled 15-month trial initially designed to enroll up to 150 patients. The European Medicines Agency, or EMA, requested that a minimum of at least 80 patients who are responders to octreotide capsules following the six-month run-in phase be randomized to either remain on octreotide capsules or return to injectable somatostatin receptor ligands (octreotide or lanreotide), and then followed for an additional nine months. In June 2019, we completed the enrollment of 146 total patients in MPOWERED and expect to release top-line data from the MPOWERED trial in the second half of 2020.

The current standard of care for patients diagnosed with acromegaly and not otherwise cured by surgical removal of the pituitary tumor consists of lifelong, once-monthly injections of an extended release somatostatin analog, primarily octreotide or lanreotide. These products contain a viscous formulation and are typically administered by a healthcare professional with large-gauge needles into the muscle or deep subcutaneously, that is, deeply under the skin. While injectable somatostatin analogs are generally effective at reducing GH and IGF-1 levels and therefore providing disease control, the injections are associated with significant limitations and patient burdens, including suboptimal symptom control, pain, injection-site reactions and other injection-related side effects, inconvenience, lost work days and emotional issues. We believe that approximately 8,000 adult acromegaly patients are chronically treated with somatostatin analogs in the United States, and that approximately 90% of these patients are managed by fewer than 1,000 patient care centers. Patients with acromegaly undergoing treatment in the United States are generally treated by endocrinologists at a small number of academic institutions with pituitary experts (pituitary centers), regional academic centers or hospital systems (regional referral centers) and some community endocrinologists.

We retain worldwide rights to develop and commercialize octreotide capsules with no royalty obligations to third parties. If approved, we plan to commercialize octreotide capsules ourselves in the United States and to explore the strategic merits of collaboration opportunities for commercializing octreotide capsules in the European Union and the rest of the world. Octreotide capsules are currently protected by issued patents lasting until at least 2029 in the United States, the European Union, United Kingdom, Japan and several other jurisdictions, and by pending patent applications in additional jurisdictions that will last until 2029, if granted. We are also pursuing additional patent applications relating to particular uses, dosages and packaging for octreotide capsules. On March 26, 2019, a United States patent which is directed to specific methods of using octreotide capsules was granted. This patent will expire in 2036.

We were incorporated in 2001 and commenced active operations in the same year. Our operations to date have been limited to organizing and staffing our company, business planning, raising capital, developing our TPE technology, identifying potential drug candidates, undertaking nonclinical studies and, beginning in 2010, conducting clinical trials and preparing for regulatory submissions. In addition, we have initiated pre-commercial activities in anticipation of a potential mid-2020 FDA marketing approval of octreotide capsules. In July 2015, we completed our initial public offering, or IPO, in which we raised $106.5 million. In April 2019, we completed a follow-on public offering of common stock in which we raised an additional $32.2 million. In August 2019, we completed a follow-on public offering of common stock in which we raised an additional $52.3 million. As of September 30, 2019, our consolidated cash, cash equivalents and marketable securities were $102.7 million, of which $0.5 million was held by Chiasma (Israel) Ltd., our wholly owned Israeli subsidiary.

We have incurred significant operating losses since our inception. Our net loss was $24.3 million for the nine months ended September 30, 2019 and $31.3 million for the year ended December 31, 2018. As of September 30, 2019, we had an accumulated deficit of $260.9 million. We expect to incur significant operating losses over the next several years. These losses, combined with prior losses will continue to have an adverse effect on our cash resources, stockholders' equity and working capital. We expect to continue the open label extension phase of our Phase 3 CHIASMA OPTIMAL clinical trial of octreotide capsules in acromegaly and to continue to conduct our international Phase 3 MPOWERED clinical trial of octreotide capsules in acromegaly to support potential regulatory approval in the European Union. We released top-line CHIASMA OPTIMAL data in July 2019, and we expect to release top-line MPOWERED data in the second half of 2020. Clinical development timelines, the probability of success and development costs can differ materially from expectations.

In June and August 2016, we announced two separate corporate restructuring plans intended to focus our resources on the continued development of octreotide capsules for the maintenance treatment of adult acromegaly patients. As a result of the August 2016 reduction in workforce, we eliminated our research and discovery functions and are currently not materially investing in those areas. We have made and are continuing to make substantial investments in our Phase 3 clinical trials of octreotide capsules. Because of the numerous risks and uncertainties facing our company and associated with developing and commercializing pharmaceutical products generally, we are unable to predict the extent of any future losses or when we will become profitable, if at all.

Until such time, if ever, as we can generate substantial product revenues, we expect to finance our cash needs through a combination of equity offerings and debt financings, and we may also opportunistically consider license and collaboration agreements with potential partners. We may be unable to raise capital when needed or on attractive terms, or to enter into collaboration agreements, which could force us to delay, limit, reduce or terminate our product development or future commercialization efforts. We will need to generate significant revenues to achieve profitability, which we may not be able to achieve.

Roche License Agreement

In December 2012, we signed a license agreement with F.Hoffmann-La Roche Ltd. and Hoffmann-La Roche Inc. (collectively "Roche"), which was effective in January 2013, and granted Roche an exclusive, non-transferable license to our intellectual property related to octreotide capsules. In July 2014, Roche terminated the license agreement. Subsequent to the termination, we purchased from Roche active pharmaceutical ingredient ("API") supplies to continue the development and manufacturing of octreotide capsules as well as Roche's proposed trade name for octreotide capsules for an aggregate amount of $5.1 million payable in three equal annual installments of $1.7 million beginning in 2016. We made the final $1.7 million annual payment in March 2018. Roche has no remaining rights to octreotide capsules and we retain all rights to octreotide capsules and all related intellectual property. We have no further financial or operational obligations to Roche.

Financial Overview

Research and Development

Research and development expenses consist of expenses incurred in performing research and development activities, including compensation and benefits for full-time research and development employees, an allocation of facilities expenses, overhead expenses, nonclinical pharmacology studies, manufacturing process-development and scale-up activities, clinical trial and related clinical manufacturing expenses, fees paid to contract research organizations, or CROs, investigative sites, and other external expenses. In the early phases of development, our research and development costs included expanding our technology platform as well as early development of specific product candidates. The majority of our research and development expenses has been spent on the development of octreotide capsules, including the manufacturing of clinical trial material, manufacturing process development and validation, regulatory and clinical activities, and our TPE platform. We expense research and development costs as incurred.

As a result of the August 2016 reduction in workforce, we eliminated our research and discovery functions and are currently not materially investing in those areas. Since then, we have continued to invest in the clinical development of octreotide capsules, including our two international Phase 3 trials, CHIASMA OPTIMAL and MPOWERED. Product candidates in late stages of development generally have higher development costs than those in earlier stages of development, primarily due to the increased size and duration of late-stage clinical trials. We plan to continue the open label extension portion of our international Phase 3 CHIASMA OPTIMAL clinical trial of octreotide capsules in acromegaly. We also expect to continue to conduct our international Phase 3 MPOWERED clinical trial of octreotide capsules in acromegaly to support potential regulatory approval in the European Union. The successful development of octreotide capsules is highly uncertain.

General and Administrative

General and administrative expenses consist primarily of salaries and related benefits, including stock-based compensation, related to our executive, finance, legal, marketing and support functions. Other general and administrative expenses include facility-related costs not otherwise allocated to research and development expenses, travel expenses for our general and administrative personnel and professional fees for auditing, tax, and corporate, litigation and intellectual property-related legal services.

Marketing expenses consist of professional fees related to preparation for the potential commercialization of octreotide capsules as well as salaries and related benefits for commercial employees. In anticipation of marketing approval of our original NDA, and prior to the receipt of the CRL in April 2016, we accelerated our preparation for commercialization of octreotide capsules. Following the June 2016 restructuring plan and the termination of primarily all of our commercial personnel, these expenses were significantly reduced. Our marketing expenses for the six months ended June 30, 2019 and

the year ended December 31, 2018 were immaterial. Following the positive top-line data from our CHIASMA OPTIMAL trial, which we released in July 2019, we have begun to incur additional pre-commercial marketing related expenses and we expect these expenses to substantially increase as we continue to prepare for the potential commercialization of octreotide capsules in the United States. In addition to anticipated future increases in marketing expenses, as we prepare for the potential commercialization of octreotide capsules and grow our operations, we expect that our other general and administrative expenses will increase as well.

Other Income, Net

Other income, net consists primarily of interest income earned on our investments.

Provision (Benefit) for Income Taxes

We are subject to federal and state income taxes for earnings generated in the United States, and foreign taxes on earnings of our wholly-owned Israeli subsidiary. Our consolidated tax expense is primarily affected by the mix of our foreign subsidiary permanent items, discrete items, and unrecognized tax benefits and to a lesser extent our taxable income (loss) in the United States.

Critical Accounting Policies and Use of Estimates

We have adopted various accounting policies to prepare our consolidated financial statements in accordance with accounting principles generally accepted in the United States, or U.S. GAAP. Our most significant accounting policies are described in Note 1 to our consolidated financial statements included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2018. For information on new accounting pronouncements adopted in the current period and recently issued standards, see Note 1 to our condensed consolidated financial statements. The preparation of our consolidated financial statements in conformity with U.S. GAAP requires us to make estimates and assumptions that affect the amounts reported in our consolidated financial statements and accompanying notes. Our estimates and assumptions include those related to the accounting for stock-based compensation, income taxes, and accounting for certain accruals. We assess the above estimates on an ongoing basis; however, actual results could materially differ from those estimates.

Results of Operations for the Three and Nine Months ended September 30, 2019 and 2018

Research and Development

The following is a comparison of research and development expenses for the three and nine months ended September 30, 2019 and 2018:

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2019	2018	$ Change	% Change	2019	2018	$ Change	% Change
	($ in thousands)							
Research and development	$4,110	$5,462	$(1,352)	(25%)	$16,103	$16,630	$ (527)	(3%)

For the three months ended September 30, 2019, our total research and development expenses decreased by $1.4 million to $4.1 million compared to the prior year period, primarily due to a decrease in clinical trial costs partially offset by an increase in manufacturing and regulatory costs. For the nine months ended September 30, 2019, our total research and development expense decreased by $0.5 million compared to the prior year period primarily due to a decrease in clinical trial costs partially offset by increases in manufacturing and regulatory costs.

General and Administrative

The following is a comparison of general and administrative expenses for the three and nine months ended September 30, 2019 and 2018:

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2019	2018	$ Change	% Change	2019	2018	$ Change	% Change
	($ in thousands)							
General and administrative	$4,116	$2,256	$1,860	82%	$9,210	$7,317	$1,893	26%

For the three and nine months ended September 30, 2019 and 2018, our general and administrative expenses increased by $1.9 million compared to prior year periods, primarily due to an increase in compensation-related expenses, the initiation of pre-commercial activities, and increased insurance premiums and were partially offset by a decrease in legal costs.

Other Income, net

Other income totaled $1.1 million for the nine months ended September 30, 2019 compared to other income of $0.8 million for the same period in 2018, an increase of approximately $0.3 million. This increase in our interest income was driven by the increase of our cash equivalents and marketable securities and an increase in the interest rate yield on our cash equivalents and marketable securities.

Provision for Income Taxes

Our total tax provision was approximately $34,000 for the nine months ended September 30, 2019, representing an effective tax rate of (0.1%), as compared to a tax provision of approximately $24,000 for the nine months ended September 30, 2018, representing an effective tax rate of (0.1%).

Our effective tax rate differs from the statutory rate each year mainly due to a full valuation allowance maintained against U.S. deferred tax assets and due to lower tax rates applied to income of our Israeli subsidiary.

Liquidity and Capital Resources

In July 2015, we completed our IPO in which we raised $106.5 million by selling shares of common stock. In April 2019, we completed a follow-on public offering of common stock in which we raised an additional $32.2 million in net proceeds to finance our operations. In August 2019, we completed a follow-on public offering of common stock in which we raised an additional $52.3 million in net proceeds to finance our operations. As of September 30, 2019, our cash and cash equivalents were $19.7 million, of which $0.5 million was held by our Israeli subsidiary. In addition, as of September 30, 2019, we had $83.0 million invested in short-term marketable securities.

Plan of Operations and Future Funding Requirements

We expect that our primary uses of capital will be associated with seeking regulatory approval of octreotide capsules in the United States and European Union, including clinical trial costs (including our international Phase 3 MPOWERED clinical trial that we initiated in March 2016 to support regulatory approval of octreotide capsules in the European Union and our international Phase 3 CHIASMA OPTIMAL clinical trial open label extension), manufacturing of octreotide capsules for market consumption, if approved, legal and regulatory expenses related to seeking regulatory approval of octreotide capsules in the United States and European Union, commercialization of octreotide capsules in the United States, if approved, compensation and related expenses, third-party clinical development services, regulatory expenses, and other general operating costs.

We currently expect our existing cash, cash equivalents and marketable securities will be at least sufficient to fund our operations, as currently planned, through our anticipated mid-2020 PDUFA date and through at least 2020. We cannot estimate the actual amounts necessary to successfully complete the development and commercialization of octreotide capsules, if at all, or whether, or when, we may achieve profitability. Our future capital requirements will depend on many factors, including, but not limited to:

- the costs, timing and outcome of the development and regulatory review of octreotide capsules;
- the progress and results of our ongoing clinical trials of octreotide capsules or any future clinical trials or studies we may conduct;
- the costs and timing of future commercialization activities, including product manufacturing, marketing, sales and distribution, for octreotide capsules and any other future product candidates for which we receive marketing approval;

- proceeds, if any, received from commercial sales of octreotide capsules and any future product candidates for which we receive marketing approval;
- the costs and timing of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property rights and defending any intellectual property-related claims; and
- the extent to which we develop, acquire or in-license other product candidates and technologies or explore or consummate other strategic transactions.

Until such time, if ever, as we can generate substantial product sales, we expect to finance our cash needs through a combination of equity offerings and debt financings and we may opportunistically consider license and collaboration arrangements. We filed a shelf registration statement on Form S-3 with the SEC in March 2018, which was declared effective in May 2018. In April 2019, we completed a follow-on public offering of common stock pursuant to the shelf registration statement on Form S-3 filed in March 2018, and a prospectus supplement filed in March 2019, in which we raised $34.5 million in gross proceeds, or $32.2 million in net proceeds after underwriting fees and offering expenses. In August 2019, we completed a follow-on public offering of common stock pursuant to the shelf registration statement on Form S-3 filed in March 2018, and a prospectus supplement filed in July 2019, in which we raised $55.9 million in gross proceeds, or $52.3 million in net proceeds after underwriting fees and offering expenses. We filed a $200.0 million shelf registration statement on Form S-3 with the SEC in September 2019, which the SEC declared effective in September 2019.

To the extent that we raise additional capital through future issuance of equity or debt, the ownership interest of our stockholders will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our existing common stockholders. If we raise additional funds through collaboration arrangements, we may have to relinquish valuable rights to our current or future product candidates, exploratory programs, technologies or future revenue streams on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our product development or future commercialization efforts of octreotide capsules or grant rights to develop and market future potential product candidates that we would otherwise prefer to develop and market ourselves.

Cash Flows

The following is a summary of cash flows for the nine months ended September 30, 2019 and 2018:

	Nine Months Ended September 30,	
	2019	2018
	($ in thousands)	
Cash flows provided by (used in):		
Operating activities	$ (25,261)	$ (17,453)
Investing activities	(54,089)	15,715
Financing activities	85,955	(1,696)

Operating Activities

Net cash used in operating activities was $25.3 million for the nine months ended September 30, 2019, and primarily consisted of $24.3 million in net loss, adjusted for non-cash items of $1.9 million (primarily stock-based compensation) and working capital decrease of $2.9 million (primarily due to the decrease in accounts payable and accrued expenses as well as an increase in prepaid expenses and other assets). Net cash used in operating activities was $17.5 million for the nine months ended September 30, 2018, and primarily consisted of $23.2 million in net loss, adjusted for non-cash items of $1.9 million (primarily stock-based compensation) and working capital increases of $3.8 million (primarily due to the increase in accounts payable and accrued expenses and decreases in prepaid expenses and other current assets). The primary driver for the increase in our cash used in our operating activities during the nine months ended September 30, 2019 compared to the nine months ended September 30, 2018 was the timing of clinical trial and manufacturing related payments.

Investing Activities

Net cash used in investing activities was $54.1 million for the nine months ended September 30, 2019, primarily related to the net purchases of marketable securities driven by the net proceeds received from the follow-on public offerings that were completed in April and August 2019, compared to $15.7 million in cash provided by investing activities for the nine months ended September 30, 2018, primarily related to the net maturities of marketable securities.

Financing Activities

Net cash provided by financing activities was $86.0 million during the nine months ended September 30, 2019, primarily related to the net proceeds received from the follow-on public offerings that were completed in April and August 2019 and the net proceeds from a short-term borrowing. For the nine months ended September 30, 2018, net cash used in financing activities was $1.7 million, related to the final $1.7 million installment payment related to the termination of the Roche license agreement.

Contractual Obligations

As of September 30, 2019, we had outstanding purchase orders for the acquisition of API in the aggregate amount of $5.6 million. The payments on these orders will occur following the deliveries of the API which are anticipated during 2020.

Off-Balance Sheet Arrangements

We did not have during the periods presented, and we do not currently have, any off-balance sheet arrangements, as defined in the rules and regulations of the SEC.

JOBS Act

In April 2012, the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, was enacted. Section 107 of the JOBS Act provides that an "emerging growth company" can take advantage of an extended transition period for complying with new or revised accounting standards. Thus, an emerging growth company can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have irrevocably elected not to avail ourselves of this extended transition period, and, as a result, we will adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for public companies.

Item 3. Quantitative and Qualitative Disclosures about Market Risk

The market risk inherent in our financial instruments and in our financial position represents the potential loss arising from adverse changes in interest rates. As of September 30, 2019, we had $19.7 million in cash and cash equivalents, consisting of cash in checking accounts at U.S. and Israeli banking institutions as well as money market funds. In addition, as of September 30, 2019, we had $83.0 million of marketable securities. Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates. An immediate 100 basis point increase in interest rates would cause a decrease in the value of our short-term investments of $0.4 million. As of September 30, 2019, we did not have any outstanding variable interest rate nor long-term borrowings, and as a result we are not exposed to interest rate risk associated with credit facilities.

In addition, we are subject to currency risk for balances held, or denominated, in currencies other than U.S. dollars. We work to maintain all balances in U.S. dollars until payment in other currencies is required to minimize this currency risk. Fluctuations in the exchange rate between the U.S. dollar and each of the Euro, GBP and NIS over the past 24 months have been approximately (8%), (9%), and 2%, respectively. As of September 30, 2019, we held $0.5 million in Israeli banks and petty cash funds to support our Israeli operations, the majority of which is denominated in U.S. dollars. We contract with CROs internationally, primarily for the execution of clinical trials and manufacturing activities. Transactions with these providers are settled in U.S. dollars, Euros or GBP and, therefore, we believe that we have only minimal exposure to foreign currency exchange risks. We do not currently hedge against foreign currency exchange rate risks.

We do not believe that inflation and changing prices had a significant impact on our results of operations for any periods presented herein.

Item 4. Controls and Procedures

Management's Evaluation of our Disclosure Controls and Procedures

We maintain disclosure controls and procedures (as defined in Rules 13a-15(e) or 15d-15(e) under the Securities Exchange Act of 1934, as amended, or the Exchange Act) that are designed to ensure that information required to be disclosed in the reports that we file or submit under the Exchange Act is (1) recorded, processed, summarized, and reported within the time periods specified in the SEC's rules and forms and (2) accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure.

Our management, with the participation of our principal executive officer and principal financial officer, evaluated the effectiveness of our disclosure controls and procedures as of the end of the period covered by this report. In designing and evaluating our disclosure controls and procedures, our management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives, and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Our principal executive officer and principal financial officer have concluded based upon the evaluation described above that, as of September 30, 2019, our disclosure controls and procedures were effective at the reasonable assurance level.

We continue to review and document our disclosure controls and procedures, including our internal controls and procedures for financial reporting, and may from time to time make changes aimed at enhancing their effectiveness and to ensure that our systems evolve with our business.

Changes in Internal Control Over Financial Reporting

During the three months ended September 30, 2019, there have been no changes in our internal control over financial reporting, as such term is defined in Rules 13a-15(f) and 15(d)-15(f) promulgated under the Exchange Act, 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

On June 9, 2016, Chiasma, Inc. and certain of our current and former officers were named as defendants in a purported federal securities class action lawsuit filed in the United States District Court for the District of Massachusetts, styled *Gerneth v. Chiasma, Inc., et al.* An amended complaint was filed by the lead plaintiff on February 10, 2017 challenging our statements regarding our first Phase 3 clinical trial methodology and results, and our ability to obtain FDA approval for octreotide capsules, in violation of Sections 11 and 15 of the Securities Act of 1933. The amended complaint added as defendants current and former members of our board of directors, as well as the investment banks that underwrote our initial public offering on July 15, 2015. The plaintiff sought an unspecified amount of compensatory damages on behalf of himself and members of a putative shareholder class, including interest and reasonable costs and expenses incurred in litigating the action, and any other relief the court determines is appropriate. The defendants filed a motion to dismiss the amended complaint on March 27, 2017 and on February 15, 2018, the court denied defendants' motion to dismiss. The defendants filed an answer to the amended complaint on March 30, 2018. On February 27, 2019, the parties agreed to a settlement of all legal claims in which defendants expressly denied that they have committed any act or omission giving rise to any liability under Sections 11 or 15 of the Securities Act of 1933. On March 14, 2019, the court issued an order of preliminary approval of the settlement. As a result of this settlement agreement, we have recorded a litigation settlement liability of $18.8 million as of December 31, 2018. Additionally, we have recorded a litigation insurance settlement recovery receivable of $18.3 million as of December 31, 2018 which represents the estimated insurance claim proceeds from our insurance carriers. On June 27, 2019, the court issued an order of final approval of the settlement. The litigation insurance settlement recovery and litigation settlement liability were settled during the three months ended June 30, 2019.

Item 1A. Risk Factors

We operate in a rapidly changing environment that involves a number of risks that could materially affect our business, financial condition or future results, some of which are beyond our control. In addition to the other information set forth in this Quarterly Report on Form 10-Q, you should carefully consider the factors discussed in Part I, "Item 1A. Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2018, as filed with the SEC, which could materially affect our business, financial condition or future results. The following risk factors include a material change from the risk factors set forth in our Annual Report on Form 10-K for the year ended December 31, 2018. You should carefully review these risk factors and the risk factors described in our Annual Report on Form 10-K and in other reports we file with the Securities and Exchange Commission in evaluating our business.

In light of our receipt of a Complete Response Letter, or CRL, from the FDA in April 2016 regarding our New Drug Application, or NDA, for octreotide capsules for the maintenance treatment of U.S. adult patients with acromegaly, our participation in an End of Review Meeting and several additional interactions with the FDA, and despite our receipt of a Special Protocol Assessment, or SPA, for our CHIASMA OPTIMAL Phase 3 clinical trial, the approvability of octreotide capsules is uncertain and we may never obtain regulatory approval in the United States, which would jeopardize our viability as a business.

In June 2015, we submitted an NDA to the FDA for the marketing and sale of octreotide capsules for the maintenance therapy of adult patients with acromegaly. On the Prescription Drug User Fee Act, or PDUFA, date of April 15, 2016, the FDA issued a CRL regarding the NDA, indicating that their review was complete and the NDA was not ready for approval in its present form. In its CRL, the FDA advised us that it did not believe our application provided substantial evidence of efficacy to warrant approval, and advised us that we would need to conduct another clinical trial in order to overcome this deficiency. The FDA expressed concerns regarding certain aspects of our single-arm, open-label Phase 3 clinical trial and strongly recommended that we conduct a randomized, double-blind and controlled trial that enrolls patients from the United States and is of sufficiently long duration to ensure that control of disease activity is stable at the time point selected for the primary efficacy assessment. In addition, the FDA advised that, during a site inspection, certain deficiencies were conveyed to the representative of one of our suppliers that would need to be resolved before approval. In addition, while the FDA did not note any safety concerns related to octreotide capsules in the CRL, it subsequently indicated in the minutes from our June 2016 End of Review meeting that the size, duration, dropout rate and absence of a control group in our Phase 3 clinical trial were factors limiting an overall safety assessment.

In the End of Review meeting, we discussed the concerns raised by the FDA in the CRL, and in the meeting minutes, the FDA reiterated its strong recommendation for a randomized, double-blind and controlled trial, and introduced the concept of a placebo control as a design element that could address some of the FDA's concerns. In August 2017, we reached agreement with the FDA under its SPA procedures of a new Phase 3 clinical trial of octreotide capsules in adult acromegaly patients, which includes a placebo control. This clinical trial was designed to address the concerns previously raised in the CRL and support a potential resubmission of our NDA for octreotide capsules in acromegaly. In May 2018, we received a SPA Agreement Modification Letter from the FDA agreeing to our proposed modification to the hierarchical set of secondary endpoints. We refer to this new Phase 3 trial, which we initiated in September 2017, using the acronym CHIASMA OPTIMAL.

In July 2019, we reported statistically significant top-line data from the CHIASMA OPTIMAL trial. We plan to resubmit our NDA by year-end 2019. We expect the FDA will aim to complete its review of our anticipated NDA, if accepted for filing, within six months based on our expectation that the NDA filing will be designated a Class 2 resubmission by FDA to address its CRL to our original NDA. The time provided for the NDA review, if submitted, could take longer than we expect. Although we currently estimate that our existing cash, cash equivalents and marketable securities will be sufficient to fund our operations through the anticipated mid-2020 PDUFA date, regulatory outcomes are inherently uncertain and, in the event of a delay, we may not have the sufficient capital resources necessary to fund our operations. Further, we may not have sufficient capital resources to fund any additional trials that the FDA may require as a condition to approval.

We also cannot provide any assurance that the data from the CHIASMA OPTIMAL trial will be sufficiently positive to support U.S. regulatory approval of octreotide capsules for the maintenance therapy of adult patients with acromegaly. Varying interpretations of the data obtained from nonclinical and clinical testing or manufacturing of our product candidates could delay, limit or prevent regulatory approval of octreotide capsules. Of note, in July 2014, F. Hoffmann-La Roche Ltd. and Hoffmann-La Roche Inc., collectively Roche, elected to terminate our license agreement for octreotide capsules after reviewing the data from the seven-month core treatment period of our first Phase 3 clinical trial of octreotide capsules and after a May 2014 pre-NDA meeting with the FDA. Roche cited no reason for its decision in its formal notice of termination, but stated publicly at the time that it had elected to make this decision after receiving additional information about our first Phase 3 clinical trial and after further consultation with regulatory authorities. Subsequent to this decision, we independently met with the FDA to discuss the clinical development of octreotide capsules, including the first Phase 3 clinical results from the six-month extension phase of the clinical trial (in addition to the seven-month core data provided by Roche in May 2014). At this meeting, the FDA advised us that it had not identified an issue that would preclude us from submitting an NDA for review. However, the FDA also advised us that interpreting efficacy from a voluntary long-term extension study is subject to limitations and therefore the data at the seven-month time point in our first Phase 3 clinical trial would carry more weight in the efficacy evaluation than the extension data. The FDA also informed us that, in its view, a single-arm study was not as informative as a controlled study such as an active control trial using a non-inferiority design, and that the interpretability of the efficacy findings we submitted in our NDA from our single-arm study, and whether these findings would be robust enough to warrant approval, would be review issues as the FDA evaluated our NDA. In April 2016, the FDA issued a CRL.

If CHIASMA OPTIMAL fails to address the concerns raised by the FDA in the CRL or if the FDA determines that the data from the trial are insufficient to support marketing approval, we may be unable to obtain U.S. regulatory approval for the marketing and sale of octreotide capsules at all or without submitting new or additional clinical data to the FDA, which may require that we conduct one or more additional clinical trials, which we are highly unlikely to pursue. Furthermore, if the CHIASMA OPTIMAL trial data is not

sufficient to support U.S. regulatory approval, our ability to pursue regulatory approval in the European Union, if the MPOWERED Phase 3 clinical trial is positive, will require significant additional time and capital, which we may not be able to secure on favorable terms, if at all. The prospects for our business under these circumstances will be significantly diminished, our ability to continue as a standalone business could be materially impaired and we may need to cease operations.

Even though our Phase 3 CHIASMA OPTIMAL trial was conducted under a SPA agreed to with the FDA, we cannot guarantee that the design of, or data collected from, this trial or any of our clinical trials will be sufficient to support filing or approval of an NDA.

In the context of a Phase 3 clinical trial, the purpose of a SPA is to reach agreement with the FDA on the protocol design and size of the trial that may form the primary basis of an efficacy claim in support of an NDA. In requesting a SPA agreement, a sponsor asks focused questions on specific issues relating to the protocol, protocol design, study conduct, study goals and data analysis. However, according to regulatory guidance, a SPA agreement does not indicate FDA concurrence on every protocol detail. Absence of an FDA comment on a particular aspect of a trial does not necessarily indicate agreement if the sponsor did not specifically ask about that aspect. Moreover, a SPA is not a guarantee of approval, even if the trial is successful. A SPA is not binding on the FDA and may be rescinded if, for example, the FDA identifies a safety concern related to the product or its pharmacological class, if the FDA and the scientific community recognize a paradigm shift in disease diagnosis or management, if the relevant data, assumptions or information provided by the sponsor in the SPA submission are found to be false or misstated or omit relevant facts, or if the sponsor fails to follow the protocol that was agreed upon with the FDA. A SPA may be modified, as our SPA was in May 2018, with the written agreement of the FDA and the trial sponsor and, according to regulatory guidance, minor issues can be resolved through additional correspondence and protocol amendments after the trial begins. However, the FDA retains significant latitude and discretion in interpreting the terms of a SPA agreement, the significance of protocol amendments, and the data and results from the applicable clinical trial.

Further, the results from the CHIASMA OPTIMAL trial, a double-blind, placebo controlled clinical trial, may not be sufficiently robust to support the filing or approval of an NDA. In particular, the CHIASMA OPTIMAL trial has a relatively small sample size, 56 patients enrolled, and therefore the FDA has indicated that missing data, which might be only a few measurements, may raise questions about data quality and may, ultimately, invalidate the trial results. It should also be noted that the design of the CHIASMA OPTIMAL trial is different in important ways from the design of both our current MPOWERED clinical trial and our first completed Phase 3 clinical trial. For example, in contrast to our first completed Phase 3 clinical trial, which did not have a placebo arm, the CHIASMA OPTIMAL trial design called for the randomization of 50% of study patients to placebo capsules.

We anticipate that the FDA will review the totality of the data collected from the CHIASMA OPTIMAL trial, including both primary and secondary endpoints, including but not limited to data related to the loss of biochemical response when switching from injectable somatostatin analogs to octreotide capsules, together with certain data from our other clinical trials of octreotide capsules, in evaluating octreotide capsules treatment effect in any NDA and determining whether to grant approval. Therefore, our achievement of the primary endpoint, and all secondary endpoints in the CHIASMA OPTIMAL trial alone may not be sufficient to support approval. Not all endpoints measured in our clinical trials may be supportive of octreotide capsules' efficacy or safety.

We also anticipate that the FDA will review whether the data collected from CHIASMA OPTIMAL and our other clinical trials are sufficiently robust to support the interpretability of these analyses, in determining whether to approve our NDA. Consequently, there can be no assurance that the data collected from the CHIASMA OPTIMAL trial will be sufficient to support approval of our NDA for the marketing and sale of octreotide capsules. If the data from CHIASMA OPTIMAL is insufficient to support approval of our NDA, our ability to continue as a standalone business could be materially impaired and we may need to cease operations.

We are substantially dependent on the regulatory approval and subsequent commercial success of octreotide capsules for the treatment of acromegaly in the United States, both of which may never occur or may be substantially delayed.

We are a clinical-stage biopharmaceutical company with no products approved by regulatory authorities or available for commercial sale. As a result, our potential to generate future revenues is currently dependent upon our ability to obtain regulatory approval and achieve commercial success of octreotide capsules for the treatment of acromegaly in the United States and European Union. Our receipt of a CRL from the FDA to our NDA for octreotide capsules and the requirement to conduct an additional Phase 3 clinical trial to address the concerns raised in the CRL has resulted, and will continue to result, in a significant delay in our ability to commercialize octreotide capsules in the United States, if we are ever able to obtain U.S. regulatory approval at all.

Even if we receive regulatory approval, the timing and success of the commercial launch of octreotide capsules in the United States is dependent upon a number of factors, including, but not limited to, hiring and retaining sales, marketing and other commercial personnel (especially since we terminated substantially all of our commercial personnel in June 2016), implementing internal systems and infrastructure in order to support a commercial sales organization and establish patient-focused programs, obtain pricing and

reimbursement, the production of sufficient quantities of commercial drug product (especially since we indefinitely suspended all of our commercial manufacturing commitments during the second quarter of 2016 and have only recently commenced discussions with our commercial suppliers regarding anticipated commercial supply requirements), implementation of a distribution infrastructure, the efficacy and safety data from our clinical trials and the competitive landscape. In addition, the FDA may introduce significant restrictions to the label for octreotide capsules, if approved, in an effort to address the concerns it raised in the CRL and the End of Review meeting or to address findings in the CHIASMA OPTIMAL trial or the MPOWERED clinical trial. Any such restrictions or concerns about efficacy within the medical community could significantly impact market adoption and commercial performance of octreotide capsules, even if we are able obtain regulatory approval to commercialize in the United States in the future.

In the event that we are not able to resubmit our planned NDA to the FDA, the CHIASMA OPTIMAL trial is not interpreted to be successful by the FDA, or we are otherwise unable to obtain U.S. regulatory approval for the marketing and sale of octreotide capsules, we may not be able to ever reach or achieve profitability, or even commercial viability, based solely on the prospects of marketing authorization approval of octreotide capsules in the European Union. Further, the MPOWERED trial, even if successful, may no longer be sufficient evidence to warrant EMA approval of octreotide capsules as we expect that any failure to achieve U.S. regulatory approval to commercialize octreotide capsules may reduce the likelihood of approval of octreotide capsules by the EMA. Our potential for financial success in the European Union as a standalone market will largely be dependent upon our ability to raise significant additional capital at least through the MAA approval date, which is uncertain, to obtain timely and adequate pricing and reimbursement approval for octreotide capsules from countries comprising the European Union, if approved, to achieve market acceptance of octreotide capsules in the European Union, to build our commercial infrastructure and distribution capabilities in the European Union, and to grow the octreotide capsules business in the EU market to a certain scale. As such, there can be no assurance that the commercialization of octreotide capsules or our business plans are at all viable in the absence of sufficiently positive CHIASMA OPTIMAL data and FDA approval of octreotide capsules.

In addition, we have incurred and expect to continue to incur significant expenses and to utilize virtually all of our efforts and financial resources as we continue to pursue the approval of octreotide capsules in the United States and European Union. The success of octreotide capsules, if approved, will depend on several factors, including:

- the efficacy and safety data from our clinical trials;
- execution of an effective sales and marketing strategy for the commercialization of octreotide capsules;
- acceptance by patients, the medical community and third-party and government payors;
- the incidence and prevalence of acromegaly in those markets in which octreotide capsules are approved;
- the prevalence and severity of side effects, if any, experienced with octreotide capsules;
- the availability, perceived advantages, cost, safety and efficacy of alternative treatments;
- our success in educating physicians and patients about the benefits, administration and use of octreotide capsules;
- successful implementation of our manufacturing processes and production of quantities of commercial drug product;
- maintaining compliance with regulatory requirements, including current good manufacturing practices, or cGMPs, and taking other measures satisfactory to the FDA; and
- obtaining and maintaining patent, trademark and trade secret protection and regulatory exclusivity and otherwise protecting our rights in our intellectual property portfolio.

Other than octreotide capsules, we have no other product candidates in clinical development. As a result, we continue to be highly dependent on the regulatory approval and successful commercialization of octreotide capsules, the failure or delay of which could raise substantial doubt of our ability to continue as a viable business.

We do not have a sales and marketing organization and, as a company, have not commercialized any products. If we are able to secure regulatory approval for octreotide capsules in acromegaly, but are unable to establish effective sales and marketing capabilities in the United States and access them in the European Union and other international markets, we may not succeed in commercializing octreotide capsules.

We essentially do not have sales and marketing personnel. Based upon feedback provided by the FDA in the CRL and End of Review meeting minutes, as well as through the SPA process, new or additional data will be required before the FDA would consider U.S. regulatory approval for the marketing and sale of octreotide capsules in acromegaly, which requires that we conduct the CHIASMA OPTIMAL Phase 3 trial and possibly additional clinical trials.

We have not engaged a partner to commercialize octreotide capsules in the U.S., if approved, and therefore we currently intend to build our sales and marketing infrastructure to support commercial launch in the United States, assuming our NDA is approved. If our NDA is approved when we expect, our sales and marketing team will have worked together for only a limited period prior to our anticipated commercial launch of oral octreotide. We cannot guarantee that we will be successful in marketing oral octreotide in the United States. We may not be able to establish a direct sales force in a cost-effective manner or realize a positive return on this investment. In addition, we will have to compete with other pharmaceutical and biotechnology companies to recruit, hire, train and retain sales and marketing personnel. Factors that may inhibit our efforts to successfully commercialize oral octreotide in the United States ourselves include:

- our inability to recruit and retain adequate numbers of effective sales and marketing personnel;
- the inability of our relatively small sales force to obtain access to or inform adequate numbers of physicians, particularly the pituitary centers and the significantly larger number of community endocrinologists, about the potential benefits of oral octreotide;
- the lack of complementary products to be offered by sales personnel, which may put us at a competitive disadvantage relative to companies with more extensive product lines;
- the inability to compete with larger, more established pharmaceutical sales and marketing organizations;
- the inability of market-access personnel to obtain sufficient levels of pricing and reimbursement in each jurisdiction; and
- unforeseen costs, expenses and delays associated with creating a commercial organization.

Even if we are able to obtain regulatory approval, we cannot guarantee when that will occur or whether we will be successful in marketing octreotide capsules in the United States or any other jurisdiction. If we are not successful in recruiting of sales and marketing personnel on a timely basis or rebuilding a sales and marketing infrastructure, or if we do not successfully enter into appropriate collaboration arrangements, we will have difficulty commercializing octreotide capsules, if approved, which could harm our business, operating results and financial condition.

If pursued by us, expansion of our business into the European Union and other international markets will require significant management attention and additional financial resources. We may explore commercializing octreotide capsules in the European Union and other international markets by entering into collaboration agreements with other biopharmaceutical companies, and we may not be successful in entering into these collaboration agreements. In the event that we do enter into such agreements, we may have limited or no control over the sales, marketing and distribution activities of these third parties. Additional factors and risks that may inhibit our efforts to commercialize octreotide capsules in foreign markets include:

- our inability to commercialize octreotide capsules in the United States.
- our inability to directly control commercial activities because we are relying on third parties, should we enter into third-party collaborations;
- varying pricing in different foreign markets, which could adversely affect pricing in other countries;
- the burden of complying with complex and changing foreign regulatory, tax, accounting and legal requirements;
- different medical practices and customs in foreign countries affecting acceptance in the marketplace;
- import or export licensing requirements;
- longer collection times for accounts receivable;
- longer lead times for shipping;
- language barriers for technical training;
- reduced protection of intellectual property rights in some foreign countries, and related prevalence of generic alternatives to therapeutics;
- foreign currency exchange rate fluctuations;

- our ability to obtain adequate reimbursement for octreotide capsules in foreign markets, either at all or at prices that exceed our costs; and
- the interpretation of contractual provisions governed by foreign laws in the event of a contract dispute.

Foreign sales of octreotide capsules could also be adversely affected by the imposition of governmental price controls, political and economic instability, trade restrictions and changes in tariffs.

We may not be able to establish a commercial operation in a cost-effective manner or realize a positive return on this investment, even with the assistance of one or more third-party collaborators, should we choose to enter into such an arrangement. In addition, we will have to compete with other pharmaceutical and biotechnology companies to recruit, hire, train and retain sales and marketing personnel.

If we or third-party collaborators are not successful in recruiting sales and marketing personnel or in building a sales and marketing infrastructure, or if we do not successfully enter into additional collaboration arrangements with third parties, we may not be able to successfully commercialize octreotide capsules or any future product candidates we may develop in foreign markets, which could impair our business, operating results and financial condition.

Even with the potential assistance of third-party collaborators, we may not be successful in establishing a commercial operation in foreign markets for numerous reasons, including, but not limited to, failing to attract, retain and motivate the necessary skilled personnel and failing to develop a successful marketing strategy. Failure to establish a commercial operation in foreign markets will have a negative outcome on our ability to commercialize octreotide capsules and generate revenue.

Additionally, if approved for marketing in one or more countries, we and/or our potential third-party collaborators may encounter unexpected or unforeseen delays in establishing our commercial operations that delay the commercial launch in these countries. These delays may increase the cost of and the resources required for successful commercialization of octreotide capsules both in the United States and internationally. We do not have any experience in a commercial launch in the United States, European Union or elsewhere.

The manufacture and packaging of pharmaceutical products such as octreotide capsules are subject to FDA requirements and those of similar foreign regulatory bodies. If we or our third-party manufacturers fail to satisfy these requirements, our product development and commercialization efforts may be harmed.

The manufacture and packaging of pharmaceutical products, such as octreotide capsules, if approved, are regulated by the FDA and similar foreign regulatory bodies and must be conducted in accordance with the FDA's cGMP and comparable requirements of foreign regulatory bodies. There are a limited number of manufacturers that operate under these cGMP regulations who are both capable of manufacturing octreotide capsules and willing to do so. Failure by us or our third-party manufacturers to comply with applicable regulations or requirements could result in sanctions being imposed on us, including fines, injunctions, civil penalties, failure of regulatory authorities to grant marketing approval of our products, delays, suspension or withdrawal of approvals, seizures or voluntary recalls of product, operating restrictions and criminal prosecutions, any of which could harm our business. The same requirements and risks are applicable to the suppliers of the key raw material used to manufacture the active pharmaceutical ingredient, or API, for octreotide capsules. For example, in its CRL, the FDA advised that, during a site inspection, certain deficiencies were conveyed to the representative of one of our suppliers that would need to be resolved before approval of our NDA for octreotide capsules. Although we were informed that the supplier received an Establishment Inspection Report, or EIR, from the FDA, indicating that the FDA has concluded its inspection of the supplier and as of the date of its report considers outstanding deficiencies resolved, we expect that our suppliers will be subject to additional regulatory inspections in the future, including in connection with the FDA's review of the NDA we plan to resubmit seeking approval of octreotide capsules in acromegaly. There can be no assurances that our suppliers will pass all future inspections, the failure of which could result in delays to our ability to receive regulatory approval for octreotide capsules.

Changes in the manufacturing process or procedure, including a change in the location where the product is manufactured or a change of a third-party manufacturer, may require prior FDA review and approval of the manufacturing process and procedures in accordance with the FDA's cGMPs. Any new facility is subject to a pre-approval inspection by the FDA and would again require us to demonstrate product comparability to the FDA. There are comparable foreign requirements. This review may be costly and time consuming and could delay or prevent the launch of a product.

Furthermore, in order to obtain approval of our current or future product candidates, including octreotide capsules, by the FDA and foreign regulatory agencies, we will be required to consistently produce the API and the finished product in commercial quantities and of specified quality on a repeated basis and document our ability to do so. We expect each of our potential API suppliers will require additional qualified capacity to meet future demand and each may use a different method to manufacture API, which has the potential

to increase the risk to us that our manufacturers will fail to meet applicable regulatory requirements. If approved, we will also need to complete required testing on the finished product in the packaging we propose for commercial sales. This includes testing of stability, measurement of impurities and testing of other product specifications by validated test methods. If the FDA does not consider the result of the process validation or required testing to be satisfactory, commercial supply after NDA approval, if obtained, and launch may be delayed.

The FDA and similar foreign regulatory bodies may also implement new requirements, or change their interpretation and enforcement of existing requirements, for manufacturing, packaging or testing of products at any time. If we are unable to comply, we may be subject to regulatory, civil actions or penalties which could harm our business.

We are, and expect to be for the foreseeable future, dependent on a limited number of third parties to manufacture octreotide capsules.

We do not currently have, nor do we plan to acquire, the capability or infrastructure to manufacture the API in octreotide capsules for use in our clinical trials or for commercial product, if regulatory approvals are obtained. We have qualified Novetide Ltd., a subsidiary of Teva Pharmaceuticals Industries Ltd., in Israel and an affiliate of Teva API, Inc., and Bachem Americas Inc. in the United States as our suppliers of the generic API, octreotide acetate. We believe that all excipients, or substances formulated together with the API that are used in the manufacture of octreotide capsules, are readily available. The octreotide API is lyophilized, formulated with our TPE technology, filled into capsules and enteric-coated by Lyophilization Services of New England Inc., or LSNE, in Bedford, NH and Lonza, in Livingston, Scotland.

The facilities used by our contract manufacturers to manufacture octreotide capsules are evaluated by the FDA and other regulatory bodies. We are completely dependent on our contract manufacturing partners for compliance with cGMPs for manufacture of both API and finished drug products. These cGMP regulations cover all aspects of the manufacturing, testing, quality control and record keeping relating to octreotide capsules. If our contract manufacturers cannot successfully manufacture material that conforms to our specifications and the strict regulatory requirements of the FDA or others, we will not be able to secure and/or maintain regulatory approval of our product candidate being manufactured at their manufacturing facilities. If the FDA or a comparable foreign regulatory authority finds deficiencies at these facilities, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval of or market octreotide capsules, if approved. For example, in its CRL, the FDA advised that, during a site inspection, certain deficiencies were conveyed to the representative of one of our suppliers that would need to be resolved before approval of our NDA for octreotide capsules. Although we were informed that the supplier received an EIR from the FDA, indicating that the FDA has concluded its inspection of the supplier and as of the date of its report considers outstanding deficiencies resolved, we expect that our suppliers will be subject to additional regulatory inspections in the future, including in connection with the FDA's review of the NDA we plan to resubmit seeking approval of octreotide capsules in acromegaly. There can be no assurances that our suppliers will pass all necessary inspections, the failure of which could result in delays to our ability to receive regulatory approval for octreotide capsules.

Our contract manufacturers will be subject to ongoing periodic unannounced inspections by the FDA and corresponding state and foreign agencies for compliance with cGMPs and similar regulatory requirements. We do not have control over our contract manufacturers' compliance with these regulations and requirements. Failure by any of our contract manufacturers to comply with applicable regulations could result in sanctions being imposed on us, including fines, injunctions, civil penalties, failure to grant approval to market octreotide capsules, delays, suspensions or withdrawals of approvals, operating restrictions and criminal prosecutions, any of which could harm our business. In addition, we have no control over the ability of our contract manufacturers to maintain adequate quality control, quality assurance and qualified personnel. Failure by our contract manufacturers to comply with or maintain any of these requirements could impair our ability to develop, obtain regulatory approval of or market octreotide capsules.

If, for any reason, these third parties are unable or unwilling to perform, we may not be able to effectively terminate our agreements with them, and we may not be able to locate alternative manufacturers or formulators or enter into favorable agreements with them, and we cannot be certain that any such third parties will have the manufacturing capacity to meet future requirements. If these manufacturers or any alternate manufacturer of finished drug product experiences any significant difficulties in its respective manufacturing processes for our API or finished octreotide capsules product or should cease doing business with us, we could experience significant interruptions in the supply of octreotide capsules or may not be able to create a supply of octreotide capsules at all. Were we to encounter manufacturing issues, our ability to produce a sufficient supply of octreotide capsules might be negatively affected. Our inability to coordinate the efforts of our third-party manufacturing partners, or their inability to increase and maintain their capacity to meet our commercial demand, could impair our ability to supply octreotide capsules at required levels. Because of the significant regulatory requirements that are necessary to qualify a new API or finished product manufacturer, if required, or to qualify a new or existing site for a current manufacturer, which we plan to do as part of our commercialization strategy, we could experience significant interruptions in the supply of octreotide capsules if such regulatory qualifications are withheld or delayed, especially if we decided to transfer the manufacture of API or finished octreotide capsules to one or more alternative manufacturers in an effort to deal with any manufacturing, qualification or other difficulties.

Any manufacturing problem or the loss of a contract manufacturer could be disruptive to our operations and, if our products receive marketing approval, result in lost sales. Additionally, we rely on third parties to supply the raw materials needed to manufacture octreotide capsules. Any reliance on suppliers may involve several risks, including a potential inability to obtain critical materials and reduced control over production costs, delivery schedules, reliability and quality. Any unanticipated disruption to future contract manufacturers caused by problems at suppliers could delay shipment of octreotide capsules and, if approved for marketing, increase our cost of goods sold and result in lost sales.

We cannot guarantee that our current manufacturing and supply partners or any alternative service providers will be able to reduce the costs of commercial-scale manufacturing of octreotide capsules over time, particularly following the suspension of our commercial commitments to certain of our manufacturers following the receipt of the CRL. If the manufacturing costs of octreotide capsules remain at current levels or increase, these costs may significantly impact our future operating results. In order to reduce costs, we may need to develop and implement process improvements or produce octreotide capsules at certain scales. However, in order to do so, we will need, from time to time, to notify or make submissions with regulatory authorities, and the improvements may be subject to approval by such regulatory authorities. We cannot be sure that we will receive these necessary approvals or that these approvals will be granted in a timely fashion. We also cannot guarantee that we will be able to enhance and optimize output in our commercial manufacturing process. If we cannot enhance and optimize output, we may not be able to reduce our costs over time, which could be detrimental to the profitability of octreotide capsules in any market, and particularly the EU market where lower prices are expected if we are able to secure marketing approvals for octreotide capsules there.

We have previously established commercial manufacturing agreements with Teva API, Inc. for the API in octreotide capsules and with LSNE for certain testing and lyophilization services. Following our receipt of the CRL, we indefinitely suspended our commercial production commitments. In the future, if octreotide capsules are approved, we may not be able to reach or maintain agreements containing terms that are acceptable to us with our commercial manufacturers.

Our amended and restated certificate of incorporation and amended and restated bylaws provide that the Court of Chancery of the State of Delaware is the exclusive forum for certain litigation that may be initiated by 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 and amended and restated bylaws provide that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for any state law claim for (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim for breach of a fiduciary duty owed by any of our directors, officers or other employee to us or our stockholders, (iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated bylaws or (iv) any action asserting a claim governed by the internal affairs doctrine; provided, however, that this Delaware forum provision does not apply to any actions arising under the Securities Act or the Exchange Act. Although we believe this provision benefits us by providing increased consistency in the application of Delaware law in the types of lawsuits to which it applies, the provision may impose additional litigation costs on stockholders in pursuing such claims, particularly if the stockholders do not reside in or near the State of Delaware. Additionally, the 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 the filing of such lawsuits. The Court of Chancery of the State of Delaware may also reach different judgment or results than would other courts, including courts where a stockholder considering an action may be located or would otherwise choose to bring the action, and such judgments may be more or less favorable to us than our stockholders. Furthermore, the enforceability of similar exclusive forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could rule that this provision in our certificate of incorporation is inapplicable or unenforceable. If a court were to find the choice of forum provision contained in our amended and restated certificate of incorporation and amended and restated bylaws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions.

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

Recent Sales of Unregistered Securities

None.

Issuer Purchases of Equity Securities

In the quarter ended September 30, 2019, we did not repurchase any shares of our common stock.

Use of Proceeds from Public Offerings of Common Stock

On July 21, 2015, we completed the sale of 7,319,750 shares of our common stock (inclusive of 954,750 shares of common stock sold by us pursuant to the full exercise of an option granted to the underwriters) in our IPO at a price to the public of $16.00 per share. The offer and sale of the shares in our IPO was registered under the Securities Act pursuant to registration statements on Form S-1 (File No. 333-204949), which was filed with the SEC on June 15, 2015 and amended subsequently and declared effective by the SEC on July 15, 2015, and Form S-1MEF (File No. 333-205691), which was filed with the SEC on July 15, 2015 and automatically effective upon filing. Following the sale of the shares in connection with the closing of our IPO, the offering terminated. The offering did not terminate before all the securities registered in the registration statements were sold. Barclays Capital Inc. and Cowen and Company, LLC acted as joint book-running managers for the offering. William Blair & Company, L.L.C. and Oppenheimer & Co. Inc. acted as co-managers.

On April 3, 2019, we completed the sale of 7,263,158 shares of our common stock (inclusive of 947,368 shares of common stock sold by us pursuant to the full exercise of an option granted to the underwriters) in a follow-on public offering of our common stock, at a public offering price of $4.75 per share, before underwriting discounts and commissions. The offering was made pursuant to a prospectus dated May 3, 2018 and a prospectus supplement dated March 29, 2019, in connection with a takedown from the Company's shelf registration statement on Form S-3 (File No. 333-223850), which the SEC declared effective on May 3, 2018. Cantor Fitzgerald & Co. acted as sole book-running manager for the offering. H.C. Wainwright & Co., Roth Capital Partners, Brookline Capital Markets, a division of CIM Securities, LLC and LifeSci Capital LLC acted as co-managers for the offering.

On July 30, 2019, we completed the sale of 10,000,000 shares of our common stock in a follow-on public offering of our common stock, at a public offering price of $5.50 per share, before underwriting discounts and commissions. On August 23, 2019, we completed the sale of 166,427 shares of our common stock through a partial exercise of the underwriters' option, at a public offering price of $5.50 per share, before underwriting discounts and commissions. The offering was made pursuant to a prospectus dated May 3, 2018 and a prospectus supplement dated July 26, 2019, in connection with a takedown from the Company's shelf registration statement on Form S-3 (File No. 333-223850), which the SEC declared effective on May 3, 2018. Piper Jaffray & Co. and Cantor Fitzgerald & Co. acted as book-running managers for the offering. H.C. Wainwright & Co., Roth Capital Partners, and Brookline Capital Markets, a division of Arcadia Securities, LLC acted as co-managers for the offering.

We raised approximately $106.5 million in net proceeds after deducting underwriting discounts and commissions and offering expenses payable by us in our IPO. In the April 2019 follow-on public offering of common stock, we raised approximately $32.2 million in net proceeds after deducting underwriting discounts and commissions and offering expenses payable by us. In the August 2019 follow-on public offering of common stock, we raised approximately $52.3 million in net proceeds after deducting underwriting discounts and commissions and offering expenses payable by us. We invested the funds received in cash equivalents and other short-term investments in accordance with our investment policy.

We expect that our primary uses of capital will be associated with seeking regulatory approval of octreotide capsules in the United States and European Union, including clinical trial costs (including the extension phase of our international Phase 3 CHIASMA OPTIMAL clinical trial and our international Phase 3 MPOWERED clinical trial to support European Union regulatory approval of octreotide capsules), manufacturing of octreotide capsules for market consumption, if approved, legal and regulatory expenses related to seeking regulatory approval of octreotide capsules in the United States and European Union, commercialization of octreotide capsules in the United States, if approved, compensation and related expenses, third-party clinical development services, regulatory expenses, and other general operating costs.

Item 6. Exhibits

The following exhibits are filed as part of this Quarterly Report on Form 10-Q:

Exhibit No.	Description
31.1*	Certification of Principal Executive Officer pursuant to Exchange Act rules 13a-14 or 15d-14, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification of Principal Financial Officer pursuant to Exchange Act rules 13a-14 or 15d-14, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1+	Certification of Principal Executive Officer and Principal Financial Officer pursuant 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS*	XBRL Instance Document.
101.SCH*	XBRL Taxonomy Extension Schema Document.
101.CAL*	XBRL Taxonomy Extension Calculation Document.
101.DEF*	XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB*	XBRL Taxonomy Extension Labels Linkbase Document.
101.PRE*	XBRL Taxonomy Extension Presentation Link Document.

* Filed herewith.

\+ The certification furnished in Exhibit 32.1 hereto is deemed to be furnished with this Quarterly Report on Form 10-Q and will not be deemed to be "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, except to the extent that the Registrant specifically incorporates it by reference.

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 on November 5, 2019.

CHIASMA, INC.

By: */s/ Raj Kannan*
Raj Kannan
Chief Executive Officer and Director
(Principal Executive Officer)

By: */s/ Mark J. Fitzpatrick*
Mark J. Fitzpatrick
President
(Principal Financial Officer)

Exhibit 31.1

Certification

I, Raj Kannan, certify that:

1. I have reviewed this quarterly report on Form 10-Q for the period ended September 30, 2019 of Chiasma, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: November 5, 2019

/s/ Raj Kannan

Raj Kannan
Chief Executive Officer and Director
(Principal Executive Officer)

Exhibit 31.2

Certification

I, Mark J. Fitzpatrick, certify that:

1. I have reviewed this quarterly report on Form 10-Q for the period ended September 30, 2019 of Chiasma, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: November 5, 2019

/s/ Mark J. Fitzpatrick
Mark J. Fitzpatrick
President
(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the quarterly report on Form 10-Q of Chiasma, Inc. (the "Company") for the period ended September 30, 2019, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), each of the undersigned officers herby certify, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, 18 U.S.C. Section 1350, that to his knowledge:

1) the Report which this statement accompanies fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company at the dates and for the periods indicated in the Report.

Date: November 5, 2019

/s/ Raj Kannan
Raj Kannan
Chief Executive Officer and Director
(Principal Executive Officer)

Date: November 5, 2019

/s/ Mark J. Fitzpatrick
Mark J. Fitzpatrick
President
(Principal Financial Officer)