UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 10-Q

(Mark One)

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

For the quarterly period ended June 30, 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: 001-38276

APELLIS PHARMACEUTICALS, INC.

(Exact Name of Registrant as Specified in its Charter)

Delaware	**27–1537290**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
6400 Westwind Way, Suite A Crestwood, KY	**40014**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (502) 241-4114

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

C

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock	APLS	Nasdaq Global Select Market

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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	☐	Small reporting company	☐
		Emerging growth Company	☐

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

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

As of July 24, 2019, the registrant had 63,695,517 shares of common stock, $0.0001 par value per share, outstanding.

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PART I—FINANCIAL INFORMATION

Item 1. Financial Statements.

APELLIS PHARMACEUTICALS, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS

	December 31, 2018	June 30, 2019
Assets		(Unaudited)
Current assets:		
Cash and cash equivalents	$ 176,267,666	$ 289,128,569
Refundable research and development credit	1,473,591	1,950,938
Prepaid assets	24,333,851	13,977,215
Other current assets	364,113	3,355,995
Total current assets	202,439,221	308,412,717
Non-current Assets:		
Right-of-use assets	—	6,644,312
Property and equipment, net	977,918	1,439,108
Other assets	116,420	207,873
Total assets	$ 203,533,559	$ 316,704,010
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 10,254,938	$ 13,811,730
Accrued expenses	5,103,002	20,229,694
Current portion of long-term debt	1,666,667	—
Current portion of right of use liabilities	—	1,549,649
Total current liabilities	17,024,607	35,591,073
Long-term liabilities:		
Development derivative liability	—	109,840,000
Term loan facility	18,722,321	—
Promissory note	6,655,193	6,693,408
Right-of-use liabilities	—	5,243,491
Other liabilities	158,783	250,000
Total liabilities	42,560,904	157,617,972
Stockholders' equity:		
Preferred stock, $0.0001 par value; 10,000,000 shares authorized, and zero shares issued and outstanding at December 31, 2018 and June 30, 2019	—	—
Common stock, $0.0001 par value; 200,000,000 shares authorized at December 31, 2018 and June 30, 2019 and56,279,307 shares issued and outstanding at December 31, 2018 and63,672,430 shares issued and outstanding at June 30, 2019	5,628	6,367
Additional paid in capital	437,855,681	557,632,026
Accumulated other comprehensive loss	(122,807)	(121,977)
Accumulated deficit	(276,765,847)	(398,430,378)
Total stockholders' equity	160,972,655	159,086,038
Total liabilities and stockholders' equity	$ 203,533,559	$ 316,704,010

See accompanying notes to unaudited condensed consolidated financial statements

APELLIS PHARMACEUTICALS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS
(Unaudited)

	For the Three Months Ended June 30,		For the Six Months Ended June 30,	
	2018	2019	2018	2019
Operating expenses:				
Research and development	$ 27,537,619	$ 50,698,427	$ 44,940,509	$ 91,178,326
General and administrative	5,947,823	12,778,011	9,983,079	20,948,682
Operating loss	(33,485,442)	(63,476,438)	(54,923,588)	(112,127,008)
Loss on extinguishment of debt	—	—	—	(1,208,132)
Loss from remeasurement of development derivative liability	—	(9,104,000)	—	(9,840,000)
Interest expense	(603,656)	(159,497)	(1,270,743)	(753,002)
Interest income	787,665	1,421,485	1,188,066	2,288,503
Other (expense)/income, net	(32,869)	228,286	(64,341)	(24,892)
Net loss	(33,334,302)	(71,090,164)	(55,070,606)	(121,664,531)
Other comprehensive gain:				
Foreign currency gain/ (loss)	—	(1,332)	—	830
Total other comprehensive gain/ (loss)	—	(1,332)	—	830
Comprehensive loss, net of tax	$ (33,334,302)	$ (71,091,496)	$ (55,070,606)	$ (121,663,701)
Net loss per common share, basic and diluted	$ (0.61)	$ (1.12)	$ (1.05)	$ (2.01)
Weighted-average number of common shares used in net loss per common share, basic and diluted	54,691,833	63,263,901	52,534,806	60,580,646

See accompanying notes to unaudited condensed consolidated financial statements

APELLIS PHARMACEUTICALS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY
(Unaudited)

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Outstanding Shares	Amount				
Balance at January 1, 2018	50,334,152	$ 5,033	$298,201,480	$ —	$(149,263,653)	$148,942,860
Issuance of common stock upon exercise of stock options	94,868	9	225,352	—	—	225,361
Share-based compensation expense	—	—	1,610,188	—	—	1,610,188
Net loss	—	—	—	—	(21,736,304)	(21,736,304)
Balance at March 31, 2018	50,429,020	5,042	300,037,020	—	(170,999,957)	129,042,105
Issuance of common stock in follow-on offering, net of offering costs	5,500,000	550	131,324,477	—	—	131,325,027
Issuance of common stock upon exercise of stock options	225,418	23	275,726	—	—	275,749
Share-based compensation expense	—	—	2,243,527	—	—	2,243,527
Net loss	—	—	—	—	(33,334,302)	(33,334,302)
Balance at June 30, 2018	56,154,438	$ 5,615	$433,880,750	$ —	$(204,334,259)	$229,552,106

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Total Stockholders' Equity
	Outstanding Shares	Amount				
Balance at January 1, 2019	56,279,307	$ 5,628	$437,855,681	$ (122,807)	$(276,765,847)	$160,972,655
Issuance of common stock in follow-on offering, net of offering costs	6,900,000	690	109,603,159	—	—	109,603,849
Issuance of common stock upon exercise of stock options	39,169	4	192,001	—	—	192,005
Share-based compensation expense	—	—	4,558,588	—	—	4,558,588
Net loss	—	—	—	—	(50,574,367)	(50,574,367)
Foreign currency gain	—	—	—	2,162	—	2,162
Balance at March 31, 2019	63,218,476	6,322	552,209,429	(120,645)	(327,340,214)	224,754,892
Deferred issuance costs	—	—	(22,741)	—	—	(22,741)
Issuance of common stock upon exercise of stock options	453,954	45	1,262,117	—	—	1,262,162
Share-based compensation expense	—	—	4,183,221	—	—	4,183,221
Net loss	—	—	—	—	(71,090,164)	(71,090,164)
Foreign currency gain	—	—	—	(1,332)	—	(1,332)
Balance at June 30, 2019	63,672,430	$ 6,367	$557,632,026	$ (121,977)	$(398,430,378)	$159,086,038

See accompanying notes to unaudited condensed consolidated financial statements

APELLIS PHARMACEUTICALS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS

	For the Six Months Ended June 30,	
	2018	**2019**
Operating Activities		
Net loss	$ (55,070,606)	$ (121,664,531)
Adjustments to reconcile net loss to net cash used in operating activities:		
Share-based compensation expense	3,853,715	8,741,809
Loss on early extinguishment of debt	—	1,208,132
Loss from remeasurement of development derivative liability	—	9,840,000
Amortization of right-of-use assets	—	148,828
Depreciation expense	—	87,421
Accretion of discounts for promissory note	34,748	38,215
Accretion of discounts for term loan facility	336,273	104,172
Changes in operating assets and liabilities:		
Refundable research and development credit	(699,635)	(487,240)
Prepaid assets	(5,797,694)	10,356,500
Other current assets	7,128	(3,040,061)
Other assets	—	(91,066)
Accounts payable	1,469,764	3,800,907
Accrued expenses	2,230,473	15,399,575
Other liabilities	5,708	91,217
Net cash used in operating activities	(53,630,126)	(75,466,122)
Investing Activities		
Purchase of property and equipment	—	(1,067,489)
Net cash used in investing activities	—	(1,067,489)
Financing Activities		
Proceeds from issuance of common stock, net of issuance costs	131,325,027	110,239,260
Deferred issuance costs	—	(609,971)
Proceeds from development derivative liability	—	100,000,000
Proceeds from exercise of stock options	501,110	1,454,167
Repayment of term loan facility	—	(21,701,292)
Net cash provided by financing activities	131,826,137	189,382,164
Effect of exchange rate changes on cash and cash equivalents	—	12,350
Net (decrease) increase in cash and cash equivalents	78,196,011	112,860,903
Cash and cash equivalents at beginning of period	175,643,529	176,267,666
Cash and cash equivalents at end of period	$ 253,839,540	$ 289,128,569
Supplemental Disclosure of Financing Activities		
Cash paid for Interest	$ 1,008,278	$ 728,473

See accompanying notes to unaudited condensed consolidated financial statements

1. Nature of Organization and Operations

Apellis Pharmaceuticals, Inc. (the "Company") is a clinical-stage biopharmaceutical company focused on the development of novel therapeutic compounds to treat disease through the inhibition of the complement system, which is an integral component of the immune system, at the level of C3, the central protein in the complement cascade.

The Company was incorporated in September 2009 under the laws of the State of Delaware and has its principal office in Crestwood, Kentucky.

The Company's operations since inception have been limited to organizing and staffing the Company, acquiring rights to product candidates, business planning, raising capital and developing its product candidates.

The Company is subject to risks common in the biotechnology industry including, but not limited to, raising additional capital, development by its competitors of new technological innovations, its ability to successfully complete preclinical and clinical development of product candidates and receive timely regulatory approval of products, market acceptance of the Company's products, protection of proprietary technology, healthcare cost containment initiatives, and compliance with governmental regulations, including those of the U.S. Food and Drug Administration ("FDA").

Development Derivative Liability

On February 28, 2019, the Company entered into a development funding agreement with SFJ Pharmaceuticals Group ("SFJ") under which SFJ agreed to provide funding to the Company to support the development of APL-2 for the treatment of patients with paroxysmal nocturnal hemoglobinuria ("PNH") ("SFJ Agreement"). Pursuant to the agreement, SFJ paid the Company $60.0 million following the signing of the agreement, and agreed to pay the Company up to an additional $60.0 million in the aggregate in three equal installments upon the achievement of specified development milestones with respect to the Company's Phase 3 program for APL-2 in PNH and subject to the Company having cash resources at the time sufficient to fund at least 10 months of the Company's operations. In addition, upon the mutual agreement of the Company and SFJ, at any time after the earlier of the date that the Company has reviewed the primary endpoint data from its PEGASUS Phase 3 trial of APL-2 in patients with PNH and March 31, 2020, SFJ may fund an additional $50.0 million of the Company's development costs (the "Additional SFJ Funding").

On June 7, 2019, the Company and SFJ amended the development funding agreement (the "SFJ Agreement"). Under the SFJ Amendment, SFJ agreed to make an additional $20.0 million funding payment to the Company to support the development of APL-2 for the treatment of patients with PNH. This additional $20.0 million payment is in addition to and not part of the Additional SFJ Funding.

On June 27, 2019, the Company received $40.0 million from SFJ, consisting of $20.0 million as the first installment of the additional $60.0 million upon the achievement of a milestone and the $20.0 million payable under the SFJ Amendment.

The Company expects that the remaining development milestones under the SFJ Agreement will be achieved and the balance of the $60.0 million will be paid during 2019.

Follow-on Public Offerings

On March 11, 2019, the Company issued and sold 6,900,000 shares of its common stock at a price per share of $17.00 in a follow-on public offering ("2019 follow-on offering"). The Company received net proceeds of $109.6 million after deducting underwriting discounts and commissions of $7.0 million and offering costs of $0.7 million.

On April 23, 2018, the Company issued and sold 5,500,000 shares of its common stock at a price per share of $25.50 in a follow-on public offering ("2018 follow-on offering"). The Company received net proceeds of $131.2 million after deducting underwriting discounts and commissions of $8.4 million and offering costs of $0.5 million.

Liquidity and Financial Condition

The accompanying unaudited condensed consolidated financial statements have been prepared on the basis of the realization of assets and the satisfaction of liabilities and commitments in the normal course of business. As of July 31, 2019, the date of issuance of these unaudited condensed consolidated financial statements, the Company believes that its cash and cash equivalents as of June 30, 2019 of $289.1 million will be sufficient to fund its operations for at least the next twelve months from the issuance of the unaudited interim consolidated financial statements. The future viability beyond that point is dependent on its ability to raise additional capital to finance its operations.

The Company is subject to risks common to other life science companies in the development stage including, but not limited to, uncertainty of product development and commercialization, lack of marketing and sales history, development by its competitors of new technological innovations, dependence on key personnel, market acceptance of products, product liability, protection of proprietary technology, ability to raise additional financing, and compliance with FDA and other government regulations. If the Company does not successfully commercialize any of its product candidates, it will be unable to generate recurring product revenue or achieve profitability. Management's plans in order to meet its short-term and longer-term operating cash flow requirements include obtaining additional funding.

There are uncertainties associated with the Company's ability to (1) obtain additional debt or equity financing (2) enter into collaborative agreements with strategic partners, and (3) succeed in its future operations. If the Company is not able to obtain the required capital to fund its operations from any of these, or is not able to obtain such funding on terms that are favorable to the Company, it could be forced to delay, reduce or eliminate its research and development programs or future commercialization efforts and its business could be materially harmed.

2. Basis of Presentation

The accompanying unaudited condensed consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries, Apellis Australia Pty Ltd, Apellis Ireland Ltd and Apellis Switzerland GmbH. All intercompany balances and transactions have been eliminated in consolidation. The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles ("U.S. GAAP") and following the requirements of the Securities and Exchange Commission (the "SEC"), for interim reporting. As permitted under those rules, certain footnotes or other financial information that are normally required by U.S. GAAP have been condensed or omitted and, accordingly, the balance sheet as of December 31, 2018 has been derived from audited consolidated financial statements at that date but does not include all of the information required by U.S. GAAP for complete financial statements. These financial statements have been prepared on the same basis as the Company's annual financial statements and, in the opinion of management, reflect all adjustments (consisting only of normal recurring adjustments) that are necessary for a fair presentation of the Company's financial information. The results of operations for the six months ended June 30, 2019 are not necessarily indicative of the results to be expected for the year ending December 31, 2019 or for any other interim period or for any other future year.

The accompanying unaudited condensed consolidated financial statements and related financial information should be read in conjunction with the audited consolidated financial statements and the related notes thereto for the year ended December 31, 2018 included in the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission on February 26, 2019.

Fair Value of Financial Instruments

The Company is required to disclose information on the fair value of financial instruments and inputs that enable an assessment of the fair value. The three levels of the fair value hierarchy prioritize valuation inputs based upon the observable nature of those inputs as follows:

Level 1 – Quoted prices in active markets for identical assets or liabilities;

Level 2 – Inputs other than quoted prices included within level 1 that are observable for the asset or liability, either directly or indirectly;

Level 3 – Unobservable inputs that reflect the Company's own assumptions about the assumptions market participants would use in pricing the asset or liability.

The Company's financial instruments, in addition to those presented in Note 5, Long-Term Debt, and Note 7, Fair Value Measurements, include cash and cash equivalents, the Australian research and development credit, accounts payable and accrued

liabilities. Management believes that the carrying amounts of cash and cash equivalents, the Australian research and development credit, accounts payable and accrued expenses approximate the fair value due to the short-term nature of those instruments.

Cash and Cash Equivalents

Cash and cash equivalents are defined as cash in banks and investment instruments having maturities of three months or less from their acquisition date. The carrying amounts reported in the consolidated balance sheets for cash and cash equivalents are valued at cost, which approximates their fair value.

Foreign Currency

Due to the growing volume of research contracts and intercompany loans that are now being exclusively denominated in local currency, effective August 1, 2018, the functional currency of the Company's Australian subsidiary was changed from the U.S. dollar to the Australian dollar. The impact of the change in functional currency was not material to the audited consolidated financial statements for the year ended December 31, 2018.

As a result of the change in functional currency, the financial position and results of operations of the Company's Australian subsidiary are measured using the foreign subsidiary's local currency. Revenues and expenses of the Australian subsidiary have been translated into U.S. dollars at average exchange rates prevailing during the period from January 1, through June 30, 2019. Assets and liabilities have been translated at the rates of exchange on the balance sheet date. The resulting translation gain and loss adjustments are recorded directly as a separate component of stockholders' equity.

Reclassifications

Certain prior year amounts have been reclassified to conform to the 2019 presentation.

3. Accrued Expenses

Accrued expenses are as follows:

	December 31, 2018	June 30, 2019
Accrued research and development	$ 3,481,570	$ 13,147,445
Accrued payroll liabilities	269,046	6,126,120
Other	1,352,386	956,129
Total	$ 5,103,002	$ 20,229,694

4. Development Derivative Liability

On February 28, 2019, the Company entered into the SFJ Agreement under which SFJ agreed to provide funding to the Company to support the development of APL-2 for the treatment of patients with PNH. Pursuant to the agreement, SFJ paid the Company $60.0 million following the signing of the agreement, and agreed to pay the Company up to an additional $60.0 million in the aggregate in three equal installments upon the achievement of specified development milestones with respect to the Company's Phase 3 program for APL-2 in PNH and subject to the Company having cash resources at the time sufficient to fund at least 10 months of the Company's operations. In addition, upon the mutual agreement of the Company and SFJ, at any time after the earlier of the date that the Company has reviewed the primary endpoint data from its PEGASUS Phase 3 trial of APL-2 in patients with PNH and March 31, 2020, SFJ may fund an additional $50.0 million of the Company's development costs.

On June 7, 2019, the Company and SFJ amended the development funding agreement (the "SFJ Agreement"). Under the SFJ Amendment, SFJ agreed to make an additional $20.0 million funding payment to the Company to support the development of APL-2 for the treatment of patients with PNH. This additional $20.0 million payment is in addition to and not part of the Additional SFJ Funding.

On June 27, 2019, the Company received $40.0 million from SFJ, consisting of $20.0 million as the first installment of the additional $60.0 million upon the achievement of a milestone and the $20.0 million payable under the SFJ Amendment.

The Company expects that the remaining development milestones under the SFJ Agreement will be achieved and the balance of the $60 million will be paid during 2019.

Under the SFJ agreement following regulatory approval by the FDA or EMA for the use of APL-2 as a treatment for PNH the Company will be obligated to pay SFJ an initial payment of up to $5.0 million (or a total of $10.0 million if regulatory approval is granted by the FDA and the EMA) and then up to an additional $226.0 million in the aggregate (or up to $452.0 million if regulatory approval is granted by the FDA and the EMA) insix additional annual payments with the majority of the payments being made from the third anniversary to the sixth anniversary of regulatory approval. Such payments will be proportionately adjusted in the event that the actual funding from SFJ is lower or greater than $120 million (including as a result of the payment of the Additional SFJ Funding but excluding the $20 million funding payment made under the SFJ Amendment). Additionally, the Company granted a security interest in all of its assets, excluding intellectual property and license agreements to which it is a party. In connection with the grant of the security interest, the Company agreed to certain affirmative and negative covenants, including restrictions on its ability to pay dividends, incur additional debt or enter into licensing transactions with respect to its intellectual property, other than specified types of licenses.

The SFJ Agreement is presented as a derivative liability on the balance sheet as of June 30, 2019. The liability was initially recorded at the value of the $60.0 million aggregate cash received pursuant to the contractual terms, which was determined to have been fair value, and subsequently remeasured at March 31, 2019 as a level 3 derivative, with the change in fair value of $736,000 recorded for the three months ended March 31, 2019 in loss from remeasurement of development derivative liability on the income statement. The Company received an additional $40.0 million in June 2019 and the derivative liability under the SFJ Agreement (as amended) was subsequently remeasured at June 30, 2019 as a level 3 derivative, with the change in fair value of $9,104,000 recorded for the three months ended June 30, 2019 in loss from remeasurement of development derivative liability on the income statement.

The derivative is valued using a scenario-based discounted cash flow method, whereby each scenario makes assumptions about the probability and timing of cash flows, and such cash flows are present valued using a risk-adjusted discount rate. The analysis is calibrated such that the value of the derivative as of the date of the SFJ Agreement was consistent with an arm's-length transaction. Key inputs to the level 3 fair value model include (i) the probability and timing of achieving stated development milestones to receive the next tranches of funding, (ii) the probability and timing of achieving FDA and EMA approval, (iii) SFJ's cost of borrowing (8.00%), and (iv) the Company's cost of borrowing (15.82%).

SFJ's implied cost of borrowing was 8.00% and the Company's implied cost of borrowing was 15.82% as of the reporting date. These implied costs of borrowing were determined assuming the SFJ Agreement was initially executed with arm's-length terms. If the SFJ Agreement was instead not determined to be an arm's-length transaction, then implied discount rates could differ.

5. Long-term Debt

Term Loan Facility

On October 20, 2017, the Company entered into a loan and security agreement with Silicon Valley Bank ("SVB") to provide for a $20.0 million term loan facility (the "term loan facility"). Borrowings under the term loan facility accrued interest at a floating rate per annum equal to the WSJ prime rate plus 1.50%. Under the agreement, the Company was required to make monthly interest-only payments through November 1, 2019 and was required to make24 equal monthly payments of principal, plus accrued interest, from November 1, 2019 through October 1, 2021, when all unpaid principal and interest became due and payable.

On March 26, 2019, the Company voluntarily repaid all outstanding amounts due and owed, including applicable termination fees, under the term loan facility. The final payment of $21,802,403 totaled per diem interest of $101,111 and $21,701,292 for the outstanding balance of the term loan which included (i) a final payment equal to 8% of the original principal amount of the term loan of $1,600,000, and (ii) a prepayment fee contractually owed of $100,000 plus other fees of $1,292 which resulted in a total loss on extinguishment of debt of $1,208,132.

In connection with the Company's entry into the term loan facility, the Company issued to SVB a warrant to purchase14,064 shares of the Company's common stock with an exercise price per share of $5.484. The warrant has a ten-year term and includes a put option pursuant to which, in the event of an acquisition, change in control or dissolution or winding up of the Company,

or the expiration of the warrant, SVB may require the Company to repurchase the warrant for a total aggregate purchase price of $250,000.

Related Party Promissory Note

On October 19, 2017, the Company issued and sold an unsecured promissory note in the principal amount of $7.0 million to Golda Darty Partners S.A. ("GDP"), an affiliate of one of the Company's stockholders. The promissory note accrues interest at a rate per annum of 8.0%, and is due and payable quarterly in arrears on the 19th day of each April, July, October and January. The promissory note has a maturity date of October 19, 2022 when the $7,000,000 is due and payable in its entirety. The promissory note is contractually subordinated to the Company's obligations to SFJ under the SFJ Agreement.

In connection with the issuance and sale of the above promissory note, the Company issued to GDP a warrant to purchase 93,764 shares of the Company's common stock at a price per share of $5.484, which was exercised in whole in October 2017. The Company recorded the fair value of the warrant in the aggregate amount of $430,160 as a discount to the promissory note. This amount is being accreted as additional interest expense over the term of the promissory note.

6. Leases

On January 1, 2019, The Company adopted ASU 2016-02 *Leases (Topic 842)* using a modified retrospective method. The Company recognized $5.5 million of lease assets and liabilities. There was no impact to retained earnings upon adoption of Topic 842. The underlying assets of the Company's leases primarily relate to office space leases, but also include some equipment leases. The Company determines if an arrangement qualifies as a lease at its inception.

As a practical expedient permitted under Topic 842, the Company has elected to account for the lease and non-lease components as a single lease component for all leases of which it is the lessee. Lease payments, which may include lease and non-lease components, are included in the measurement of the Company's lease liabilities to the extent that such payments are either fixed amounts or variable amounts that depend on a rate or index as stipulated in the lease contract. When the Company cannot readily determine the rate implicit in the lease, the Company determines its incremental borrowing rate by using the rate of interest that it would have to pay to borrow on a collateralized basis over a similar term, an amount equal to the lease payments in a similar economic environment.

The Company enters into lease agreements with terms generally ranging from 2-7 years. Some of the Company's lease agreements include Company options to extend the lease on a month to month basis or for set periods for up to 5 years. Many leases also include options to terminate the leases within 1 year or per other contractual terms. Renewal and termination options were generally not included in the lease term for the Company's existing operating leases

As of June 30, 2019, all leases were classified as operating lease assets and liabilities. Operating lease assets were $6.6 million and operating lease liabilities were $6.8 million at June 30, 2019. At June 30, 2019, the weighted average remaining lease term of operating leases was 4.93 years and the weighted average discount rate used to measure the outstanding operating lease liabilities leases was 8.50%.

For the three and six months ended June 30, 2019, the total lease cost for operating lease expense was: $482,834 and $886,376, respectively.

Supplemental cash flow information related to operating leases for the six months ended June 30, 2019 is as follows:

Operating cash flows from operating leases	$	713,338
Right of use assets obtained in exchange for lease obligations	$	7,286,707

The maturity of the Company's operating lease liabilities as ofJune 30, 2019 are as follows:

2019	$	952,604
2020		1,874,641
2021		1,322,750
2022		1,353,133
2023 and thereafter		2,829,649
Total future minimum lease payments		8,332,777
Less imputed interest		(1,539,637)
Total operating lease liabilities	$	6,793,140

Comparative disclosures under ASC 840:

Rental expense under operating leases totaled $142,117 and $278,332 for the three and six months ended June 30, 2018, respectively.

As previously disclosed in our 2018 Annual Report on Form 10-K and under the previous lease accounting standard, ASC 840*Leases,* future minimum rental payments for lease obligations with initial terms in excess of one year as of December 31, 2018 were as follows:

2019	$	1,251,720
2020		1,292,025
2021		975,750
2022		998,350
2023 and thereafter		2,341,219
	$	6,859,064

7. Fair Value Measurements

The fair value of the following financial instruments are based on level 2 inputs. As of December 31, 2018 and June 30, 2019, the fair value of the Company's promissory note was approximately $7.4 million, based on discounted cash flows, market-based expectations for interest rates, credit risk and the contractual terms of the debt instrument. The term loan facility paid interest at a variable interest rate and accordingly the carrying amount approximated fair value at December 31, 2018.

The fair value of the SFJ Agreement is presented as a derivative liability based on level 3 inputs. The derivative is valued using a scenario-based discounted cash flow method, whereby each scenario makes assumptions about the probability and timing of cash flows, and such cash flows are present valued using a risk-adjusted discount rate. The analysis is calibrated such that the value of the derivative as of the date of the SFJ Agreement was consistent with an arm's-length transaction. Key inputs to the level 3 fair value model include (i) the probability and timing of achieving stated development milestones to receive the next tranche[s] of funding, (ii) the probability and timing of achieving FDA and EMA approval, (iii) SFJ's cost of borrowing (8.00%), and (iv) the Company's cost of borrowing (15.82%).

SFJ's implied cost of borrowing was 8.00% and the Company's implied cost of borrowing was 15.82% as of the reporting date. These implied costs of borrowing were determined assuming the SFJ Agreement was initially executed with arm's-length terms. If the SFJ Agreement was instead not determined to be an arm's-length transaction, then implied discount rates could differ.

8. Refundable Research and Development Credit and Income Taxes

The Company earns non-income related refundable Australian research and development credits that are settled and paid to the Company annually. The associated income from the credits are an offset to research and development expenses.

The Company's income tax provision is computed based on the federal statutory rate and the average state statutory rates, net of the related federal benefit. For the three months ended June 30, 2019 and 2018, there were no current or deferred income tax expenses or benefits due to the Company's net losses, research and development credits and increases in its deferred tax asset valuation allowance during those periods.

The Company's estimate of the realizability of the deferred tax asset is dependent on estimates of projected future levels of taxable income. In analyzing future taxable income levels, the Company considered all evidence currently available, both positive and negative. Based on this analysis, the Company has recorded a valuation allowance for all deferred tax assets as of June 30, 2019.

9. Commitments and Contingencies

The Company contracts to conduct research and development activities with third parties. The scope of the services under the research and development contracts can be modified and the contracts cancelled by the Company upon written notice. In some instances, the contracts may be cancelled by the third party upon written notice. If the Company were to cancel these contracts as of June 30, 2019, the Company would be required to pay certain termination costs and other fees of approximately $1,626,000 that would be incurred in future periods.

The Company also has certain payment and other obligations under the SFJ Agreement, which are discussed above in Note 4.

10. Net Loss per Share

Since the Company was in a loss position for all periods presented, basic net loss per common share is the same as diluted net loss per common share for all periods presented as the inclusion of all potential common shares outstanding would have been anti-dilutive. Shares outstanding presented below were excluded from the calculation of diluted net loss per share, prior to the use of the treasury stock method, as their effect is anti-dilutive:

	For the Three Months Ended June 30,		For the Six Months Ended June 30,	
	2018	2019	2018	2019
Common stock options	7,293,336	9,094,586	7,293,336	9,094,586
Common stock warrants	14,064	14,064	14,064	14,064
Total	7,307,400	9,108,650	7,307,400	9,108,650

11. Related Party Transaction

Effective as of May 1, 2018, the Company entered into a subscription license agreement and a services agreement with Revon Systems, Inc. ("Revon"). Under the subscription license agreement, Revon granted the Company an exclusive license to use the Revon software platform and applications for any purpose with respect to the Company's programs in age-related macular degeneration, hemolytic diseases and complement-dependent nephropathies for an annual license fee of $175,000 and an option to obtain a perpetual, exclusive license thereafter for $350,000. Under the services agreement, Revon will provide development services with respect to the Revon software to the Company for $250,000 during the first year.

Each of Cedric Francois, the Company's chief executive officer, Pascal Deschatelets, the Company's chief operating officer, and Alec Machiels, a member of the board of directors, is an affiliate of Revon. The Board approved the Revon agreements after review by a subcommittee of the disinterested members of the Board and determination by the full Board that the terms of the Revon agreements were fair, reasonable and in the best interests of the Company.

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 financial statements and related notes appearing elsewhere in this Quarterly Report on Form 10-Q and our audited financial statements and related notes for the year ended December 31, 2018 included in our Annual Report on Form 10-K filed with the Securities and Exchange Commission on February 26, 2019, which we refer to as the 2018 Annual Report on Form 10-K.

This Quarterly Report on Form 10-Q contains forward-looking statements that involve substantial risks and uncertainties. All statements, other than statements of historical facts, contained in this Quarterly Report on Form 10-Q, including statements regarding our strategy, future operations, future financial position, future revenue, projected costs, prospects, plans and objectives of management and expected market growth are forward-looking statements. The words "anticipate," "believe," "continue," "could," "estimate," "expect," "intend," "may," "plan," "potential," "predict," "project," "should," "target," "would" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words.

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. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. The following information and any forward-looking statements should be considered in light of factors discussed elsewhere in this Quarterly Report on Form 10-Q particularly including those risks identified in Part II—Item 1A "Risk Factors" and our other filings with the SEC.

Overview

We are a clinical-stage biopharmaceutical company focused on the development of novel therapeutic compounds to treat disease through the inhibition of the complement system, which is an integral component of the immune system, at the level of C3, the central protein in the complement cascade. We believe that this approach can result in broad inhibition of the principal pathways of the complement system and has the potential to effectively control a broad array of complement-dependent autoimmune and inflammatory diseases.

We have the most advanced clinical program targeting C3 with Phase 3 clinical trials of our lead product candidate, APL-2, in multiple indications. We believe that APL-2 has the potential to be a best-in-class treatment that may address the limitations of existing treatment options or provide a treatment option where there currently is none. APL-2 has already shown activity that we believe is clinically meaningful in clinical trials for four distinct medical conditions — geographic atrophy in age-related macular degeneration, or GA; paroxysmal nocturnal hemoglobinuria, or PNH; cold agglutinin disease, or CAD; and warm antibody autoimmune hemolytic anemia, or w/AIHA. In additional to trials for these indications, we have also initiated an exploratory clinical trial of APL-2 in patients with glomerular diseases with complement involvement.

We initiated a Phase 3 clinical program consisting of two Phase 3 clinical trials evaluating APL-2 in patients with GA in September 2018. In our Phase 2 clinical trial of APL-2 in patients with GA, treatment with APL-2 resulted in a significant reduction in the rate of GA lesion growth over 12 months. In June 2018, we also initiated a Phase 3 clinical trial evaluating APL-2 in patients with PNH who are anemic (defined as a hemoglobin level of less than 10.5 g/dL) while being treated with eculizumab, an approved therapy for PNH that is marketed as Soliris, and we completed enrollment in this trial in June 2019. We plan to initiate a second Phase 3 clinical trial in patients with PNH who have not been treated with eculizumab in the third quarter of 2019. In our ongoing Phase 1b trials in PNH, APL-2 has achieved improvements in transfusion dependency, hemoglobin levels and other hematological indicators that we believe are clinically meaningful. In our ongoing Phase 2 clinical trials of APL-2 in patients with CAD and wAIHA, patients with CAD and with wAIHA have achieved reduced extravascular hemolysis, measured by increased hemoglobin levels, reduced reticulocytes and bilirubin levels, and reduced intravascular hemolysis, measured by reduced lactate dehydrogenase. We plan to initiate a Phase 3 clinical trial of APL-2 in patients with CAD in the first half of 2020. We are also conducting clinicals trials of APL-2 for glomerular diseases with complement involvement. We are also developing novel compounds targeting C3 and plan to conduct clinical trials of these compounds in additional complement-dependent diseases. We plan to develop APL-9 for the prevention of complement immune system activation coincident with adeno-associated virus (AAV) vector administration for gene therapies. APL-9 is a second generation C3 modulator and is designed to be intravenously administered for acute use. We hold worldwide commercialization rights to APL-2, APL-9 and those other novel compounds targeting C3.

In our clinical trials of APL-2 for the treatment of PNH, we are currently using an off-the-shelf, FDA-cleared device that allows patients to self-administer APL-2 through subcutaneous infusion. In addition, we are developing, with a third-party manufacturer, a custom, on-body drug delivery system that is expected to further improve the ease of self-administration of APL-2. Initial clinical testing in a Phase 1 trial with healthy volunteers indicates that the pharmacokinetic (PK) profile of APL-2 administered

subcutaneously at 2x weekly at a dose of 1,080 mg, both with the 510(k) approved device used in the PEGASUS Phase 3 trial and with the custom delivery system, is comparable to that of APL-2 administered once daily at a dose between 270 mg and 360 mg.

Since our commencement of operations in May 2010, we have devoted substantially all of our resources to developing our proprietary technology, developing product candidates, undertaking preclinical studies and conducting clinical trials for APL-2, building our intellectual property portfolio, organizing and staffing our company, business planning, raising capital, preparing for the commercial launch of our products, and providing general and administrative support for these operations.

On February 28, 2019, we entered into a development funding agreement, which we refer to as the SFJ agreement, with SFJ Pharmaceuticals Group or SFJ, under which SFJ agreed to provide funding to us to support the development of APL-2 for the treatment of patients with PNH. Pursuant to the agreement, SFJ paid us $60.0 million following the signing of the agreement, and agreed to pay us up to an additional $60.0 million in the aggregate in three equal installments upon the achievement of specified development milestones with respect to our Phase 3 program for APL-2 in PNH and subject to our having cash resources at the time sufficient to fund at least 10 months of our operations. In addition, upon the mutual agreement of us and SFJ, at any time after the earlier of the date that we have reviewed the primary endpoint data from our PEGASUS Phase 3 trial of APL-2 in patients with PNH and March 31, 2020, SFJ may fund an additional $50.0 million of our development costs which we refer to as the Additional SFJ Funding.

On June 7, 2019, we amended the development funding agreement, which we refer to as the SFJ Amendment. Under the amendment, SFJ agreed to make an additional $20.0 million funding payment to us to support the development of APL-2 for the treatment of patients with PNH. This additional $20.0 million is in addition to and not part of the Additional SFJ Funding.

On June 27, 2019, we received $40.0 million from SFJ, consisting of $20.0 million as the first installment of the additional $60.0 million upon the achievement of a milestone and the $20.0 million payable under the SFJ Amendment. We expect that the remaining development milestones under the SFJ Agreement will be achieved and the balance of the $60.0 million will be paid during 2019.

On March 11, 2019, we issued and sold 6,900,000 shares of our common stock in a follow-on offering at a public offering price of $17.00 per share for net proceeds of $109.6 million, after deducting underwriting discounts and commissions of $7.0 million and estimated offering expenses of $0.7 million.

To date, we have financed our operations primarily through $391.5 million in net proceeds from public offerings of our common stock, including our initial public offering, or IPO, $112.6 million in proceeds from the private placement of shares of our convertible preferred stock, $100.0 million from the SFJ agreement, $20.0 million in proceeds from borrowings under a term loan facility with Silicon Valley Bank, and $7.0 million in proceeds from our issuance and sale of a promissory note to Golda Darty Partners, S.A., or GDP.

We have not generated any revenue from product sales. We have incurred significant annual net operating losses in each year since our inception and expect to continue to incur net operating losses for the foreseeable future. Our net losses were $121.7 million and $55.1 million for the six months ended June 30, 2019 and June 30, 2018, respectively. As of June 30, 2019, we had an accumulated deficit of $398.4 million. We expect to continue to incur significant expenses and increasing operating losses for the next several years. Our net losses may fluctuate significantly from quarter to quarter and year to year. We anticipate that our expenses will increase significantly if and as we continue to develop and conduct clinical trials in our current and new indications with APL-2, including the Phase 3 clinical trials in GA and the ongoing and planned Phase 3 clinical trials in PNH; initiate and continue research and preclinical and clinical development efforts for any future product candidates, such as APL-9; seek to identify and develop additional product candidates for complement-dependent diseases; seek regulatory and marketing approvals for our product candidates that successfully complete clinical trials, if any; establish sales, marketing, distribution and other commercial infrastructure in the future to commercialize any products for which we may obtain marketing approval; require the manufacture of larger quantities of product candidates for clinical development and, potentially, commercialization; maintain, expand and protect our intellectual property portfolio; hire and retain additional personnel, such as clinical, quality control and scientific personnel; add operational, financial and management information systems and personnel, including personnel to support our product development and help us comply with our obligations as a public company; and add equipment and physical infrastructure to support our research and development programs.

As of June 30, 2019, we had cash and cash equivalents of $289.1 million. We believe that our cash and cash equivalents as of June 30, 2019, will be sufficient to fund our operating expenses and capital expenditures into the third quarter of 2020.

Financial Operations Overview

Revenue

We have not generated any revenue from product sales and do not expect to generate any revenue from the sale of products in the near future. In the future, we will seek to generate revenue primarily from a combination of product sales and collaborations with strategic partners.

Research and Development Expenses

Research and development expenses consist primarily of costs incurred for our research activities, including our drug discovery efforts, and the development of our product candidates, which include:

- employee-related expenses including salaries, bonuses, benefits and share-based compensation expense;
- expenses incurred under agreements with third parties, including contract research organizations, or CROs, that conduct clinical trials and research and development activities on our behalf, and contract manufacturing organizations that manufacture quantities of drug supplies for both our preclinical studies and clinical trials;
- the cost of consultants, including share-based compensation expense; and
- various other expenses incident to the management of our preclinical studies and clinical trials.

Research and development costs are expensed as incurred. Nonrefundable advance payments for goods or services to be received in the future for use in research and development activities are deferred and capitalized. The capitalized amounts are expensed as the related goods are delivered or the services are performed. We have not provided program costs since inception because historically we have not tracked or recorded our research and development expenses on a program-by-program basis.

The following summarizes our most advanced research and development programs:

- *GA*. We are developing APL-2 as monotherapy for GA, administered by intravitreal injections. In our Phase 2 clinical trial of APL-2 in patients with GA, treatment with APL-2 resulted in a significant reduction in the rate of GA lesion growth at 12 months compared to sham. In October 2018, we voluntarily implemented a pause in dosing in our Phase 3 clinical program in patients with GA due to observed cases of non-infectious inflammation in patients treated from a single manufacturing lot of APL-2 intravitreal drug product. In March 2019, we restarted enrollment of our Phase 3 clinical program in GA and expect to have fully enrolled both trials in the GA program by the end of the first quarter of 2020, within the originally planned timeline for completion.
- *PNH*. We are developing APL-2 as monotherapy for patients with PNH, administered by subcutaneous injection. In our ongoing Phase 1b clinical trials of APL-2 in patients being treated with eculizumab and in treatment-naïve patients, APL-2 treatment has been associated with improvements in transfusion dependency, hemoglobin levels and other hematological indicators that we believe are clinically meaningful. We initiated a Phase 3 clinical trial in patients with PNH in June 2018 and completed enrollment in this trial in June 2019. This Phase 3 clinical trial, which we refer to as our PEGASUS trial, is an 80 patient randomized head-to-head study comparing APL-2 monotherapy to eculizumab monotherapy in patients with PNH currently on treatment with eculizumab. The PEGASUS trial reached full enrollment in June and we expect to announce top line results of this trial in the fourth quarter of 2019. We also plan to initiate a 48 patient Phase 3 clinical trial in treatment-naïve patients in the third quarter of 2019.
- ***CAD***. We are developing APL-2 for patients with CAD, administered by subcutaneous injection. We initiated a Phase 2 clinical trial of APL-2 in patients with wAIHA, including CAD in the first quarter of 2018, reported interim data in December 2018 and provided additional data in June 2019. We plan to initiate a Phase 3 clinical trial in patients with CAD in the first half of 2020.
- ***wAIHA***. We are developing APL-2 for patients with wAIHA, administered by subcutaneous injection. We initiated a Phase 2 clinical trial of APL-2 in patients with CAD and wAIHA in the first quarter of 2018, reported interim data in December 2018 and provided additional data in June 2019.
- ***Glomerular Diseases.*** We are conducting a Phase 2 clinical trial of APL-2 in patients with glomerular diseases with complement involvement, which we began in the first quarter of 2018. We plan to announce data for this trial in the second half of 2019.

The successful development of our product candidates is highly uncertain. Accordingly, at this time, we cannot reasonably estimate the nature, timing and costs of the efforts that will be necessary to complete the remainder of the development of these product candidates. We are also unable to predict when, if ever, material net cash inflows will commence from APL-2 or any other potential product candidates. This is due to the numerous risks and uncertainties associated with developing therapeutics, including the uncertainties of:

- establishing an appropriate safety profile in preclinical studies;
- successful enrollment in, and completion of clinical trials;
- receipt of marketing approvals from applicable regulatory authorities;
- establishing commercial manufacturing capabilities or making arrangements with third-party manufacturers;
- obtaining and maintaining patent and trade secret protection and regulatory exclusivity for our product candidates;
- launching commercial sales of the products, if and when approved, whether alone or in collaboration with others; and
- an acceptable safety profile of the products following approval.

A change in the outcome of any of these variables with respect to the development of any of our product candidates would significantly change the costs and timing associated with the development of that product candidate.

Research and development activities are central to our business model. Product candidates in later stages of clinical development generally have higher development costs than those in earlier stages of clinical development, primarily due to the increased size and duration of later-stage clinical trials. We expect research and development costs to increase significantly for the foreseeable future as our product candidate development programs progress. However, we do not believe that it is possible at this time to accurately project total program-specific expenses through commercialization. There are numerous factors associated with the successful commercialization of any of our product candidates, including future trial design and various regulatory requirements, many of which cannot be determined with accuracy at this time based on our stage of development. Additionally, future commercial and regulatory factors beyond our control will impact our clinical development programs and plans.

General and Administrative Expenses

General and administrative expenses consist primarily of employee-related expenses including salaries, bonuses, benefits and share-based compensation. Other significant costs include facility costs not otherwise included in research and development expenses, legal fees relating to patent and corporate matters, and fees for accounting and consulting services.

We anticipate that our general and administrative expenses will increase in the future to support continued research and development activities, potential commercialization of our product candidates and increased costs of operating as a public company. These increases will likely include increased costs related to the hiring of additional personnel and fees to outside consultants, attorneys and accountants, among other expenses. Additionally, we anticipate increased costs associated with being a public company including expenses related to services associated with maintaining compliance with exchange listing and SEC requirements, insurance costs and investor relations costs.

Critical Accounting Policies and Estimates

This discussion and analysis of our financial condition and results of operations is based on our financial statements, which we have prepared in accordance with U.S. generally accepted accounting principles. The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the financial statements, as well as the reported amounts of expenses during the reporting periods. On an ongoing basis, we evaluate our estimates and judgments, including those described in greater detail below. We base our estimates on historical experience and on various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

The following critical accounting policies are described under the heading "Management's Discussion and Analysis of Financial Condition and Results of Operations—Critical Accounting Policies and Estimates" in our 2018 Annual Report on Form 10-K and the notes to the unaudited condensed financial statements included in Item 1, "Unaudited Financial Statements," of this Quarterly Report on Form 10-Q. We believe that of our critical accounting policies, the following accounting policies are the most critical to fully understanding and evaluating our financial condition and results of operations:

- Research and Development, and
- Share-based Compensation

In addition, we identified the following policy as a new critical policy that reflects significant judgements or uncertainties, and potentially may result in materially different results under different assumptions and conditions.

Development Derivative Liability

Following regulatory approval by the FDA or the European Medicines Agency, or the EMA, for the use of APL-2 as a treatment for PNH we will be obligated to pay SFJ an initial payment of up to $5.0 million (or a total of $10.0 million if regulatory approval is granted by the FDA and the EMA) and then up to an additional $226.0 million in the aggregate (or up to $452 million if regulatory approval is granted by the FDA and the EMA) in six additional annual payments with the majority of the payments being made from the third anniversary to the sixth anniversary of regulatory approval. Such payments will be proportionately adjusted in the event that the actual funding from SFJ is lower or greater than $120 million (including as a result of the payment of the Additional SFJ Funding but excluding the $20 million funding payment made under the SFJ Amendment). Additionally, we granted a security interest in all of our assets, excluding intellectual property and license agreements to which it is a party. In connection with the grant of the security interest, we agreed to certain affirmative and negative covenants, including restrictions on our ability to pay dividends, incur additional debt or enter into licensing transactions with respect to its intellectual property, other than specified types of licenses.

The SFJ Agreement is presented as a derivative liability on the balance sheet as of June 30, 2019. The liability was initially recorded at the value of the $60.0 million of aggregate cash received pursuant to the contractual terms, which was determined to have been fair value, and subsequently remeasured at March 31, 2019 as a level 3 derivative, with the change in fair value of $736,000 recorded for the three months ended March 31, 2019 in loss from remeasurement of development derivative liability on the income statement. The SFJ Agreement (as amended) was subsequently remeasured at June 30, 2019 as a level 3 derivative, with the additional change in fair value of $9,104,000 recorded for the three months ended June 30, 2019 in loss from remeasurement of development derivative liability on the income statement.

The derivative is valued using a scenario-based discounted cash flow method, whereby each scenario makes assumptions about the probability and timing of cash flows, and such cash flows are present valued using a risk-adjusted discount rate. The analysis is calibrated such that the value of the derivative as of the date of the SFJ Agreement was consistent with an arm's-length transaction. Key inputs to the level 3 fair value model include (i) the probability and timing of achieving stated development goals to receive the next tranches of funding, (ii) the probability and timing of achieving FDA and EMA approval, (iii) SFJ's cost of borrowing (8.00%), and (iv) the Company's cost of borrowing (15.82%).

SFJ's implied cost of borrowing was 8.00% and the Company's implied cost of borrowing was 15.82% as of the reporting date. These implied costs of borrowing were determined assuming the SFJ Agreement was initially executed with arm's-length terms. If the SFJ Agreement was instead not determined to be an arm's-length transaction, then implied discount rates could differ.

If actual results or events differ materially from the estimates, judgments and assumptions used by us in applying these policies, our reported financial condition and results of operations could be materially affected.

Results of Operations

Comparison of Three Months Ended June 30, 2018 and 2019

The following table summarizes our results of operations for the three months ended June 30, 2018 and 2019, together with the dollar increase or decrease and percentage change in those items:

	For the Three Months Ended June 30,		Change	Change
	2018	2019	$	%
Operating expenses:				
Research and development	$ 27,537,619	$ 50,698,427	$ 23,160,808	84.1%
General and administrative	5,947,823	12,778,011	6,830,188	114.8
Net operating loss	(33,485,442)	(63,476,438)	(29,990,996)	89.6
Loss from remeasurement of development derivative liability	—	(9,104,000)	(9,104,000)	100.0
Interest expense	(603,656)	(159,497)	444,159	(73.6)
Interest income	787,665	1,421,485	633,820	80.5
Other (expense)/income, net	(32,869)	228,286	261,155	(794.5)
Net loss	$ (33,334,302)	$ (71,090,164)	$ (37,755,862)	113.3

Research and Development Expenses

The following table summarizes our research and development expenses incurred during the three months ended June 30, 2018 and 2019, together with the dollar increase or decrease and percentage change in those items:

	For the Three Months Ended June 30,		Change	Change
	2018	2019	$	%
Clinical trial costs	$ 15,712,132	$ 22,001,666	$ 6,289,534	40.0%
Contract manufacturing	6,034,770	18,491,527	12,456,757	206.4
Compensation and related personnel costs	3,546,823	7,308,082	3,761,259	106.0
Pre-clinical study expenses	1,164,421	1,804,039	639,618	54.9
Device development expenses	747,314	346,566	(400,748)	(53.6)
Other research and development costs	332,159	746,547	414,388	124.8
Total research and development expenses	$ 27,537,619	$ 50,698,427	$ 23,160,808	84.1

Research and development expenses increased by $23.2 million to $50.7 million for the three months ended June 30, 2019 from $27.5 million for the three months ended June 30, 2018, an increase of 84.1%. The increase in research and development expenses was primarily attributable to an increase of $6.3 million in clinical trial costs, an increase of $12.5 million in manufacturing expenses, an increase of $3.8 million in employee related costs primarily due to the hiring of additional personnel, an increase of $0.4 million related to research and development supporting activities, and an increase of $0.6 million in pre-clinical study expenses, offset by a decrease of $0.4 million in device development expenses. The increases to research and development expenses relate to the continued advancement of our clinical trial programs. We expect our research and development expenses to continue to increase as the number of patients in our trials increases and the number of ongoing trials increases.

General and Administrative Expenses

General and administrative expenses increased by $6.8 million to $12.8 million for the three months ended June 30, 2019, from $5.9 for the three months ended June 30, 2018, an increase of 114.8%. The increase in general and administrative expenses was primarily attributable to an increase in employee related costs of $3.0 million due to the hiring of additional personnel, an increase in professional and consulting fees of $3.6 million, an increase in general office costs of $0.7 million and an increase of $0.1 million in insurance costs offset by a decrease of $0.4 million in license agreement costs and $0.2 million in director stock compensation expense.

Loss from Remeasurement of Development Derivative Liability

Loss from remeasurement of development derivative liability was $9.1 million for the three months ended June 30, 2019. On February 28, 2019, we entered into the SFJ agreement under which SFJ agreed to provide funding to us to support the development of APL-2 for the treatment of patients with PNH. The liability was initially recorded at the value of the $60.0 million aggregate cash received pursuant to the contractual terms, which was determined to have been fair value, and subsequently remeasured at March 31, 2019 with a loss of $0.7 million recorded in loss from development derivative liability. The agreement was amended on June 7, 2019 to allow for additional funding. In June 2019, we achieved a $20.0 million development milestone under the terms of the agreement and received $20.0 million of additional funding under the amendment. The liability was subsequently remeasured at June 30, 2019 as a level 3 derivative. A loss for the quarter ended June 30, 2019 of $9.1 million was recorded as a loss from remeasurement of development derivative liability.

Interest Expense

Interest expense was $0.2 million for the three months ended June 30, 2019, a decrease of $0.4 million, compared to $0.6 million for the three months ended June 30, 2018. The interest expense in 2018 was primarily attributable to interest expense incurred on our long-term debt under the term loan facility that we repaid in March 2019.

Interest Income

Interest income was $1.4 million for the three months ended June 30, 2019, an increase of $0.6 million, compared to $0.8 million for the three months ended June 30, 2018. The increase in interest income earned during the three months ended June 30, 2019 was due to the interest earned on our cash and cash equivalents, which increased as a result of the completion of our follow-on offering in March 2019 and the payments to us under the SFJ agreement.

Other (Expense)/Income, Net

Other (expense)/income, net during the three months ended June 30, 2019, increased $0.3 million compared to the three months ended June 30, 2018.

Comparison of Six Months Ended June 30, 2018 and 2019

The following table summarizes our results of operations for the six months ended June 30, 2018 and 2019, together with the dollar increase or decrease and percentage change in those items:

	For the Six Months Ended June 30,		Change	Change
	2018	2019	$	%
Operating expenses:				
Research and development	$ 44,940,509	$ 91,178,326	$ 46,237,817	102.9%
General and administrative	9,983,079	20,948,682	10,965,603	109.8
Net operating loss	(54,923,588)	(112,127,008)	(57,203,420)	104.2
Loss on extinguishment of debt	—	(1,208,132)	(1,208,132)	100.0
Loss from remeasurement of development derivative liability	—	(9,840,000)	(9,840,000)	100.0
Interest expense	(1,270,743)	(753,002)	517,741	(40.7)
Interest income	1,188,066	2,288,503	1,100,437	92.6
Other expense, net	(64,341)	(24,892)	39,449	(61.3)
Net loss	$ (55,070,606)	$(121,664,531)	$ (66,593,925)	120.9

Research and Development Expenses

The following table summarizes our research and development expenses incurred during the six months ended June 30, 2018 and 2019, together with the dollar increase and percentage change in those items:

	For the Six Months Ended June 30,		Change	Change
	2018	2019	$	%
Clinical trial costs	$ 23,375,012	$ 39,406,860	$ 16,031,848	68.6%
Contract manufacturing	11,678,817	32,237,572	20,558,755	176.0
Compensation and related personnel costs	5,683,897	13,367,444	7,683,547	135.2
Pre-clinical study expenses	2,155,993	3,521,612	1,365,619	63.3
Device development expenses	1,249,614	693,132	(556,482)	(44.5)
Other research and development costs	797,176	1,951,706	1,154,530	144.8
Total research and development expenses	$ 44,940,509	$ 91,178,326	$ 46,237,817	102.9

Research and development expenses increased by $46.2 million to $91.2 million for the six months ended June 30, 2019 from $44.9 million for the six months ended June 30, 2018, an increase of 102.9%. The increase in research and development expenses was primarily attributable to an increase of $16.0 million in clinical trial costs, an increase of $20.6 million in manufacturing expenses, an increase of $7.7 million in employee related costs primarily due to the hiring of additional personnel, an increase of $1.1 million related to research and development supporting activities, an increase of $1.4 million in preclinical study expenses, offset by a decrease of $0.6 million in device development expenses. The increases to research and development expenses relate to the continued advancement of our clinical trial programs. We expect our research and development expenses to continue to increase as the number of patients in our trials increases and the number of ongoing trials increases.

General and Administrative Expenses

General and administrative expenses increased by $10.9 million to $20.9 million for the six months ended June 30, 2019, from $10.0 million for the six months ended June 30, 2018, an increase of 109.8%. The increase in general and administrative expenses was primarily attributable to an increase in employee related costs of $6.1 million, an increase in professional and consulting fees of $4.5 million, an increase in office, travel and related costs of $0.9 million and an increase in insurance costs of $0.2 million. These increases were offset by a decrease of $0.4 million in director stock option compensation and a decrease of $0.4 million in license agreement costs. The increased employee related costs of $6.1 million consisted of $5.8 million related to an increase in salaries and benefits primarily due to the hiring of additional personnel and $0.3 million in recruitment expense. The increased professional and consulting fees of $4.5 million primarily consisted of an increase in consulting fees of $3.6 million, an increase of $1.1 million in legal fees, offset by a decrease of $0.2 million in other professional fees.

Loss on Extinguishment of Debt

On March 26, 2019, we repaid all outstanding amounts due and owed, including applicable termination fees, under our term loan facility with Silicon Valley Bank. The final payment included the outstanding balance of the term loan as well as (i) a prepayment fee contractually owed of $0.1 million and other fees of $1,292, (ii) a final payment equal to 8% of the original principal amount of the term loan, or $1.6 million, and (iii) per diem interest of $0.1 million, for a total payment of $21.8 million, which resulted in a loss on extinguishment of debt of $1.2 million.

Loss from Remeasurement of Development Derivative Liability

Loss from remeasurement of development derivative liability was $9.8 million for the six months ended June 30, 2019. On February 28, 2019, we entered into the SFJ agreement under which SFJ agreed to provide funding to us to support the development of APL-2 for the treatment of patients with PNH. The agreement was amended on June 7, 2019 to provide for additional funding. In June of 2019, we achieved a $20.0 million development milestone under the terms of the agreement and received $20.0 million of additional funding under the amendment. The change in fair value of the derivative liability is due to the remeasurement at March 31, 2019 and June 30, 2019 which resulted in a loss of $0.7 million and $9.1 million for the respective quarters ended. The derivative liability was remeasured as a level 3 derivative.

Interest Expense

Interest expense was $0.8 million for the six months ended June 30, 2019, a decrease of $0.5 million, compared to $1.3 million for the six months ended June 30, 2018. The interest expense was primarily attributable to interest expense incurred on our long-term debt.

Interest Income

Interest income was $2.3 million for the six months ended June 30, 2019, an increase of $1.1 million, compared to $1.2 million for the six months ended June 30, 2018. The increase in interest income earned during the six months ended June 30, 2019 was due to the interest earned on our cash and cash equivalents, which increased as a result of the completion of our follow-on offering in March 2019 and the payments to us under the SFJ agreement.

Other expense, net

Other (expense)/income, net during the six months ended June 30, 2019, decreased $0.1 million compared to the six months ended June 30, 2018.

Liquidity and Capital Resources

Sources of Liquidity

On November 13, 2017, we issued and sold 10,714,000 shares of common stock in our IPO at a public offering price of $14.00 per share for net proceeds of $137.2 million after deducting underwriting discounts and commissions of $10.5 million and other offering expenses of approximately $2.3 million. On November 13, 2017, upon the closing of the IPO, all shares of preferred stock then outstanding converted into an aggregate of 30,070,034 shares of common stock. In addition, on December 13, 2017, we issued and sold an additional 981,107 shares of common stock at the IPO price of $14.00 per share pursuant to the underwriters' partial exercise of their option to purchase additional shares of common stock, resulting in net proceeds of approximately $12.8 million, after underwriting discounts and commissions of $1.0 million.

On April 23, 2018, we issued and sold 5,500,000 shares of our common stock in a follow-on offering at a public offering price of $25.50 per share. We received net proceeds of $131.3 million, after deducting underwriting discounts and commissions of $8.4 million and estimated offering expenses of $0.5 million.

On March 11, 2019, we issued and sold 6,900,000 shares of our common stock in a follow-on offering at a public offering price of $17.00. We received net proceeds of $109.6 million after deducting underwriting discounts and commissions of $7.0 million and offering costs of $0.7 million.

Prior to our IPO, we financed our operations primarily through $112.6 million in proceeds from the private placement of shares of our convertible preferred stock, $20.0 million in proceeds from borrowings under our term loan facility with Silicon Valley Bank, and $7.0 million in proceeds from our issuance and sale of a promissory note to GDP.

Agreement with SFJ

On February 28, 2019, we entered into the SFJ agreement, under which SFJ agreed to provide funding to us to support the development of APL-2 for the treatment of patients with PNH. Pursuant to the agreement, SFJ paid us $60.0 million following the signing of the agreement, and has agreed to pay us up to an additional $60.0 million in the aggregate in three equal installments upon the achievement of specified development milestones with respect to our Phase 3 program for APL-2 in PNH and subject to our having cash resources at the time sufficient to fund at least 10 months of our operations. In addition, upon the mutual agreement between us and SFJ, at any time after the earlier of the date that we have reviewed the primary endpoint data from its PEGASUS Phase 3 trial of APL-2 in patients with PNH and March 31, 2020, SFJ may fund an additional $50.0 million of our development costs.

On June 7, 2019, we amended the funding agreement with SFJ. Under the amendment, SFJ agreed to make an additional $20.0 million of funding payment to us to support the development of APL-2 for the treatment of patients with PNH. This additional $20.0 million is in addition to and not part of the Additional SFJ Funding.

On June 27, 2019, we received $40.0 million from SFJ, consisting of $20.0 million as the first installment of the additional $60.0 million upon the achievement of a milestone and the $20.0 million payable under the SFJ Amendment. We expect that the

remaining development milestones under the SFJ Agreement will be achieved and the balance of the $60.0 million will be paid during 2019.

Following regulatory approval by the U.S. Food and Drug Administration, or the FDA, or the European Medicines Agency, or the EMA, for the use of APL-2 as a treatment for PNH we will be obligated to pay SFJ an initial payment of up to $5.0 million (or a total of $10.0 million if regulatory approval is granted by the FDA and the EMA) and then up to an additional $226.0 million in the aggregate (or up to $452.0 million if regulatory approval is granted by the FDA and the EMA) in six additional annual payments with the majority of the payments being made from the third anniversary to the sixth anniversary of regulatory approval. Such payments will be proportionately adjusted in the event that the actual funding from SFJ is lower or greater than $120.0 million (including as a result of the payment of the Additional SFJ Funding but excluding the $20 million funding made under the SFJ Amendment). Additionally, we granted a security interest in all of our assets, excluding intellectual property and license agreements to which we are a party. In connection with the grant of the security interest, we agreed to certain affirmative and negative covenants, including restrictions on our ability to pay dividends, incur additional debt or enter into licensing transactions with respect to its intellectual property, other than specified types of licenses.

Indebtedness

On October 20, 2017, we entered into a loan and security agreement with Silicon Valley Bank providing for a $20.0 million term loan facility, which we refer to as the term loan facility.

Borrowings under the term loan facility accrued interest at a floating rate per annum equal to the WSJ prime rate plus 1.50%. Under the agreement, we were required to make monthly interest-only payments through November 1, 2019 and were required to make 24 equal monthly payments of principal, plus accrued interest, from November 1, 2019 through October 1, 2021, when all unpaid principal and interest were to become due and payable.

On March 26, 2019, we repaid all outstanding amounts due and owed, including applicable termination fees, under the term loan facility. The final payment included the outstanding balance of the term loan as well as (i) a prepayment fee contractually owed of $0.1 million and other fees of $1,292, (ii) a final payment equal to 8% of the original principal amount of the term loan, or $1.6 million, and (iii) per diem interest of $0.1 million, for a total payment of $21.8 million, which resulted in a loss on extinguishment of debt of $1.2 million.

In connection with our entry into the term loan facility, we issued to Silicon Valley Bank a warrant to purchase 14,064 shares of our common stock, with an exercise price per share of $5.484. The warrant has a ten-year term and includes a put option pursuant to which, in the event of an acquisition, change in control or dissolution or winding up of our company, or the expiration of the warrant, Silicon Valley Bank may require us to repurchase the warrant for a total aggregate purchase price of $250,000.

On October 19, 2017, we issued and sold an unsecured promissory note in the principal amount of $7.0 million to GDP. The note accrues interest at a rate per annum of 8.0% and is due and payable quarterly in arrears on the 19th day of each April, July, October and January beginning on January 19, 2018. The note has a maturity date of October 19, 2022. The promissory note is contractually subordinated to our obligations to SFJ under the SFJ agreement.

In connection with the issuance and sale of the $7.0 million promissory note, we issued toGDP a warrant to purchase 93,764 shares of our common stock at a price per share of $5.484, which was exercised in October 2017 prior to the IPO. The warrant was exercisable at any time but would have expired if unexercised by the closing date of our IPO. We recorded the fair value of the warrant in the aggregate amount of $430,160 as a discount to the promissory note. This amount is being accreted as additional interest expense over the term of the promissory note.

Cash Flows

The following table provides information regarding our cash flows for the six months ended June 30, 2019 and June 30, 2018:

	For the Six Months Ended June 30,	
	2018	**2019**
Net cash used in operating activities	$ (53,630,126)	$ (75,466,122)
Net cash used in investing activities	—	(1,067,489)
Net cash provided by financing activities	131,826,137	189,382,164
Effect of exchange rate changes on cash and cash equivalents	—	12,350
Net increase (decrease) in cash and cash equivalents	$ 78,196,011	$ 112,860,903

Net Cash Used in Operating Activities

Net cash used in operating activities was $75.5 million for the six months ended June 30, 2019 and consisted primarily of a net loss of $121.7 million adjusted for $20.2 million of non-cash items, including share-based compensation expense of $8.7 million, a loss on early extinguishment of debt of $1.2 million, and a loss from remeasurement of development derivative liability of $9.8 million, a net increase in accounts payable, accrued expenses and other liabilities of $19.3 million and a net decrease in operating assets of $6.7 million. The net decrease in operating assets resulted primarily from a decrease in prepaid expenses of $10.4 million offset by in other receivables of $3.0 million and an increase in refundable research and development credit of $0.5 million.

Net cash used in operating activities was $53.6 million for the six months ended June 30, 2018 and consisted primarily of a net loss of $55.1 million adjusted for non-cash items, including share-based compensation expense of $3.9 million, a net decrease in operating assets of $2.8 million, which resulted primarily from an increase in prepaid expenses of $5.8 million, an increase in other current assets of $0.7 million, and a net increase in accounts payable and accrued expenses of $3.7 million.

Net Cash Used in Investing Activities

Net cash used in investing activities during the six months ended June 30, 2019 was $1.1 million due to the purchase of fixed assets for our offices. There was no cash used in investing activities during the six months ended June 30, 2018.

Net Cash Provided by Financing Activities

Net cash provided by financing activities was $189.4 million during the six months ended June 30, 2019 and consisted primarily of proceeds from the issuance of common stock in our March follow-on offering of $110.3 million, the receipt of $100.0 million from the SFJ Agreement and $1.4 million upon the exercise of stock options, offset by $21.7 million for the repayment of our term loan facility and the payment of deferred issuance costs associated with our follow-on offering of $0.6 million.

Net cash provided by financing activities was $131.8 million during the six months ended June 30, 2018 and consisted primarily of proceeds from the issuance of common stock in the follow-on public offering that we completed in April 2018.

Funding Requirements

We expect our expenses to increase in connection with our ongoing activities, particularly as we continue the research and development of, and seek marketing approval for, our product candidates. In addition, if we obtain marketing approval for any of our product candidates, we expect to incur significant commercialization expenses related to product sales, marketing, manufacturing and distribution. Furthermore, we will continue to incur additional costs associated with operating as a public company. Accordingly, we will need to obtain substantial additional funding in connection with our continuing operations. If we are unable to raise capital when needed or on attractive terms, we would be forced to delay, reduce or eliminate our research and development programs or future commercialization efforts.

We believe that our cash and cash equivalents as ofJune 30, 2019 will enable us to fund our operating expenses and capital expenditure requirements at least into the third quarter of 2020. We have based this estimate on assumptions that may prove to be wrong, and we may use our available capital resources sooner than we currently expect. We do not expect our cash and cash equivalents as of June 30, 2019 will be sufficient to enable us to complete ourongoing and planned Phase 3 clinical trials of APL-2 or to complete the development of APL-2 or any of our other product candidates. Because of the numerous risks and uncertainties associated with the development of APL-2 and other potential product candidates, and because the extent to which we may enter into collaborations with third parties for the development of these product candidates is unknown, we are unable to estimate the amounts of capital outlays and operating expenses associated with completing the research and development of our product candidates. Our future funding requirements will depend on many factors, including:

- the scope, progress, timing, costs and results of clinical trials of, and research and preclinical development efforts for, APL-2 and future product candidates;
- our ability to identify a collaborator for any of our product candidates and the terms and timing of any collaboration agreement that we may establish for the development and any commercialization of such product candidates;
- the number and characteristics of future product candidates that we pursue and their development requirements;
- the outcome, timing and costs of clinical trials and of seeking regulatory approvals;
- the costs of commercialization activities for any of our product candidates that receive marketing approval to the extent such costs are not the responsibility of any future collaborators, including the costs and timing of establishing product sales, marketing, distribution and manufacturing capabilities;
- subject to receipt of marketing approval, revenue, if any, received from commercial sales of our current and future product candidates;
- our headcount growth and associated costs as we expand our research and development and establish a commercial infrastructure;
- the costs of preparing, filing and prosecuting patent applications, maintaining and protecting our intellectual property rights and defending against intellectual property related claims;
- the effect of competing technological and market developments;
- our ability to obtain adequate reimbursement for any product we commercialize; and
- the costs of operating as a public company.

Identifying potential product candidates and conducting preclinical testing and clinical trials is a time-consuming, expensive and uncertain process that takes years to complete, and we may never generate the necessary data or results required to obtain marketing approval and achieve product sales. In addition, our product candidates, if approved, may not achieve commercial success. Our commercial revenues, if any, will be derived from sales of medicines that we do not expect to be commercially available for many years, if at all. Accordingly, we will need to continue to rely on additional financing to achieve our business objectives. Adequate additional financing may not be available to us on acceptable terms, or 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, debt financings, collaborations, strategic alliances and licensing arrangements. We currently do not have any committed external source of funds. To the extent that we raise additional capital through the sale of equity or convertible debt securities, our stockholders' ownership interests will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect our stockholders' rights. Debt financing, if available, would result in fixed payment obligations and may involve agreements that include restrictive covenants that limit our ability to take specific actions, such as incurring additional debt, making capital expenditures or declaring dividends, that could adversely impact our ability to conduct our business.

If we raise funds through collaborations, strategic alliances or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates or to grant licenses 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 or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

Contractual Obligations

The disclosure of our contractual obligations and commitments is set forth under the heading "Management's Discussion and Analysis of Financial Condition and Results of Operations—Contractual Obligations" in our 2018 Annual Report on Form 10-K. See

Note 4 and 5 to our unaudited condensed financial statements included in Item 1, "Unaudited Financial Statements," of this Quarterly Report on Form 10-Q for a discussion of obligations and commitments.

On February 28, 2019, we entered into the SFJ agreemen. Under the agreement, following regulatory approval bythe FDA or the EMA of the use of APL-2 as a treatment for PNH, we will be obligated to pay SFJ an initial payment of up to $5.0 million (or a total of $10 million if regulatory approval is granted by the FDA and the EMA) and then up to an additional $226.0 million in the aggregate (or $452.0 million if regulatory approval is granted by the FDA and the EMA) in six additional annual payments with the majority of the payments being made from the third anniversary to the sixth anniversary of regulatory approval. Such payments will be proportionately adjusted in the event that the actual funding from SFJ is lower or greater than $120.0 million (including as a result of the payment of the Additional SFJ Funding but excluding the $20 million funding made under the SFJ Amendment). The timing and likelihood of such payments are not currently known.

Other than the SFJ agreement, during the six months ended June 30, 2019, there were no material changes to our contractual obligations and commitments as of December 31, 2018 as described under Management's Discussion and Analysis of Financial Condition and Results of Operations in our 2018 Annual Report on Form 10-K.

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 under applicable SEC rules.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

We are exposed to market risk related to changes in interest rates. As of June 30, 2019 we had cash and cash equivalents of $289.1 million, consisting primarily of money market funds. Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates. Due to the short-term duration of our investment portfolio and the low risk profile of our investments, an immediate 10% change in interest rates would not have a material effect on the fair market value of our investment portfolio. We have the ability to hold our marketable securities until maturity, and therefore we would not expect our operating results or cash flows to be affected to any significant degree by the effect of a change in market interest rates on our investments.

Item 4. Controls and Procedures.

Limitations on Effectiveness of Controls and Procedures

The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act of 1934 as amended, or the Exchange Act, refers to controls and procedures that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, or persons performing similar functions, as appropriate to allow timely decisions regarding required disclosure.

In designing and evaluating our disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply judgment in evaluating the benefits of possible controls and procedures relative to their costs.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated, as of the end of the period covered by this Quarterly Report on Form 10-Q, the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act). Based on that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective at the reasonable assurance level as of June 30, 2019.

Changes in Internal Control Over Financial Reporting

No change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) occurred during the three months ended June 30, 2019 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

Item 1. Legal Proceedings.

We are not currently subject to any material legal proceedings.

Item 1A. Risk Factors.

Careful consideration should be given to the following risk factors, in addition to the other information set forth in this Quarterly Report on Form 10-Q and in other documents that we file with the SEC, in evaluating our company and our business. Investing in our common stock involves a high degree of risk. If any of the following risks actually occur, our business, financial condition, results of operations and future growth prospects could be materially and adversely affected.

Risks Related to Our Financial Position and Need for Additional Capital

We have incurred significant losses since inception, expect to incur significant and increasing losses for at least the next several years, and may never achieve or maintain profitability.

We have incurred significant annual net operating losses in every year since our inception. We expect to continue to incur significant and increasing net operating losses for at least the next several years. Our net losses were $121.7 million for the six months ended June 30, 2019 and $127.5 million for the year ended December 31, 2018. As of June 30, 2019, we had an accumulated deficit of $398.4 million. We have not generated any revenues from product sales, have not completed the development of any product candidate and may never have a product candidate approved for commercialization. We have financed our operations to date primarily through the sale of our common stock in our initial public offering and subsequent follow-on offerings, private placements of our preferred stock, our development funding agreement with SFJ, borrowings under a term loan facility and the issuance and sale of a promissory note to GDP. We have devoted substantially all of our financial resources and efforts to research and development, including preclinical studies and our clinical trials. Our net losses may fluctuate significantly from quarter to quarter and year to year. Net losses and negative cash flows have had, and will continue to have, an adverse effect on our stockholders' equity and working capital.

We expect to continue to incur significant expenses and increasing operating losses for the foreseeable future. We anticipate that our expenses will increase substantially if and as we:

- continue to develop and conduct clinical trials in our current and new indications with our lead product candidate, APL-2;
- initiate and continue research and preclinical and clinical development efforts for any future product candidates;
- seek to identify and develop additional product candidates for complement-dependent diseases;
- seek regulatory and marketing approvals for our product candidates that successfully complete clinical trials, if any;
- establish sales, marketing, distribution and other commercial infrastructure in the future to commercialize any products for which we may obtain marketing approval;
- require the manufacture of larger quantities of product candidates for clinical development and, potentially, commercialization;
- maintain, expand and protect our intellectual property portfolio;
- hire and retain additional personnel, such as clinical, quality control and scientific personnel;
- add operational, financial and management information systems and personnel, including personnel to support our product development and help us comply with our obligations as a public company; and
- add equipment and physical infrastructure to support our research and development programs.

Our ability to become and remain profitable depends on our ability to generate revenue. We do not expect to generate significant revenue unless and until we are, or any future collaborator is, able to obtain marketing approval for, and successfully commercialize, one or more of our product candidates. Successful commercialization will require achievement of key milestones, including completing clinical trials of our product candidates, obtaining marketing approval for these product candidates, manufacturing, marketing and selling those products for which we, or any of our future collaborators, may obtain marketing approval, satisfying any post-marketing requirements and obtaining reimbursement for our products from private insurance or government payors. Because of the uncertainties and risks associated with these activities, we are unable to accurately predict the timing and amount of revenues, and

if or when we might achieve profitability. We and any future collaborators may never succeed in these activities and, even if we do, or any future collaborators do, we may never generate revenues that are large enough for us to achieve profitability. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis. Our failure to become and remain profitable would decrease the value of our company and could impair our ability to raise capital, expand our business, maintain our research and development efforts, diversify our pipeline of product candidates or continue our operations. A decline in the value of our company could cause our stockholders to lose all or part of their investment.

We have not yet successfully completed any Phase 3 clinical trials nor commercialized pharmaceutical products, which may make it difficult to evaluate our future prospects.

Our operations to date have been limited to financing and staffing our company, developing our technology and conducting preclinical research and Phase 1, Phase 2 and Phase 3 clinical trials for our product candidates. However, although we have initiated Phase 3 clinical trials and have begun planning commercial activities, we have not yet demonstrated an ability to successfully complete Phase 3 clinical trials, obtain marketing approvals, manufacture a commercial-scale product, or arrange for a third party to do so on our behalf, or conduct sales and marketing activities necessary for successful product commercialization. Accordingly, our stockholders should consider our prospects in light of the costs, uncertainties, delays and difficulties frequently encountered by clinical-stage biopharmaceutical companies such as ours. Any predictions made about our future success or viability may not be as accurate as they could be if we had a longer operating history or a history of successfully developing and commercializing pharmaceutical products.

We may encounter unforeseen expenses, difficulties, complications, delays and other known or unknown factors in achieving our business objectives. We will eventually need to transition from a company with a development focus to a company capable of supporting commercial activities. We may not be successful in such a transition. We expect our financial condition and operating results to continue to fluctuate significantly from quarter to quarter and year to year due to a variety of factors, many of which are beyond our control. Accordingly, our stockholders should not rely upon the results of any quarterly or annual periods as indications of future operating performance.

We will need substantial additional funding, and if we are unable to raise capital when needed, we could be forced to delay, reduce or eliminate our product development programs or commercialization efforts.

Developing pharmaceutical products, including conducting preclinical studies and clinical trials, is a very time-consuming, expensive and uncertain process that takes years to complete. We have consumed substantial amounts of cash since our inception. For example, in the six months ended June 30, 2019 and the years ended December 31, 2016, 2017 and 2018, we used net cash of $75.5 million, $26.0 million, $46.6 million and $131.2 million respectively, in our operating activities substantially all of which related to research and development activities. As of June 30, 2019, our cash and cash equivalents were $289.1 million. We expect our expenses to increase in connection with our ongoing activities, particularly as we initiate new clinical trials of, initiate new research and preclinical development efforts for and seek marketing approval for, our product candidates. In addition, if we obtain marketing approval for any of our product candidates, we may incur significant commercialization expenses related to product sales, marketing, manufacturing and distribution to the extent that such sales, marketing, manufacturing and distribution are not the responsibility of a future collaborator. Furthermore, we incur significant costs associated with operating as a public company. Accordingly, we will need to obtain substantial additional funding in connection with our continuing operations. If we are unable to raise capital when needed or on attractive terms, we may be forced to delay, reduce or eliminate our research and development programs or any future commercialization efforts.

We will be required to expend significant funds in order to advance the development of APL-2 in multiple disease areas, as well as other product candidates we may seek to develop. In addition, while we may seek one or more collaborators for future development of our product candidates for one or more indications, we may not be able to enter into a collaboration for any of our product candidates for such indications on suitable terms, on a timely basis or at all. In any event, our cash and cash equivalents as of June 30, 2019, will not be sufficient to complete our ongoing and planned Phase 3 clinical trials of APL-2 or to complete development of APL-2 or any of our other product candidates. Accordingly, we will be required to obtain further funding through public or private equity offerings, debt financings, collaborations and licensing arrangements or other sources to achieve our business objectives. We do not have any committed external source of funds. Adequate additional financing may not be available to us on acceptable terms, or at all. Our failure to raise capital as and when needed would have a negative impact on our financial condition and our ability to pursue our business strategy.

We believe that our cash and cash equivalents as of June 30, 2019 will enable us to fund our operating expenses and capital expenditure requirements at least into the third quarter of 2020. Our estimate as to how long we expect our cash and cash equivalents to be able to continue to fund our operations is based on assumptions that may prove to be wrong, and we could use our available

capital resources sooner than we currently expect. Further, changing circumstances, some of which may be beyond our control, could cause us to consume capital significantly faster than we currently anticipate, and we may need to seek additional funds sooner than planned. Our future funding requirements, both short-term and long-term, will depend on many factors, including:

- the scope, progress, timing, costs and results of clinical trials of, and research and preclinical development efforts for, APL-2 and future product candidates;
- our ability to identify a collaborator for any of our product candidates and the terms and timing of any collaboration agreement that we may establish for the development and any commercialization of such product candidates;
- the number and characteristics of future product candidates that we pursue and their development requirements;
- the outcome, timing and costs of clinical trials and of seeking regulatory approvals;
- the costs of commercialization activities for any of our product candidates that receive marketing approval to the extent such costs are not the responsibility of any future collaborators, including the costs and timing of establishing product sales, marketing, distribution and manufacturing capabilities;
- subject to receipt of marketing approval, revenue, if any, received from commercial sales of our current and future product candidates;
- our headcount growth and associated costs as we expand our research and development and establish a commercial infrastructure;
- the costs of preparing, filing and prosecuting patent applications, maintaining and protecting our intellectual property rights and defending against intellectual property related claims;
- the effect of competing technological and market developments;
- our ability to obtain adequate reimbursement for any product we commercialize; and
- the costs of operating as a public company.

The report of our independent registered public accounting firm included a "going concern" explanatory paragraph.

The report of Ernst & Young, LLP on our financial statements as of and for the fiscal year ended December 31, 2018 included an explanatory paragraph that there was substantial doubt about our ability to continue as a going concern. See Note 1 to the consolidated financial statements included in our 2018 *Annual Report on Form 10-K* for additional information. Given our planned expenditures, our independent registered public accounting firm may conclude, in connection with the audit of our financial statements for the year ended December 31, 2019 or any other subsequent period, that there is substantial doubt regarding our ability to continue as a going concern. If we are unable to continue as a going concern, we might have to liquidate our assets and the values we receive for our assets in liquidation or dissolution could be significantly lower than the values reflected in our financial statements. The inclusion of a going concern explanatory paragraph by our independent registered public accounting firm may materially and adversely affect our share price and our ability to raise new capital or to enter into critical contractual relations with third parties.

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

We expect our expenses to increase in connection with our planned operations. To the extent that we raise additional capital through the sale of common stock, convertible securities or other equity securities, the ownership interest of our then-existing stockholders may be diluted, and the terms of these securities could include liquidation or other preferences and anti-dilution protections that could adversely affect the rights of our common stockholders. In addition, debt financing, if available, would result in fixed payment obligations and may involve agreements that include grants of security interests on our assets and restrictive covenants that limit our ability to take specific actions, such as incurring additional debt, making capital expenditures, creating liens, redeeming stock or declaring dividends, that could adversely impact our ability to conduct our business.

For example, under our development funding agreement with SFJ, as amended, we haveagreed that following regulatory approval by the FDA or EMA for the use of APL-2 as a treatment for PNH we will pay to SFJ an initial payment of up to $5.0 million (or up to a total of $10.0 million if regulatory approval is granted by the FDA and the EMA) and then up to an additional $226.0 million in the aggregate (or up to $452.0 million if regulatory approval is granted by the FDA and the EMA) in six additional annual payments with the majority of the payments being made from the third anniversary to the sixth anniversary of regulatory approval. Such payments will be proportionately adjusted in the event that the actual funding from SFJ is lower or greater than $120 million (including as a result of the payment of the Additional SFJ Funding but excluding the $20 million funding payment made under the SFJ Amendmen). Additionally, we granted a security interest in all of our assets, excluding our intellectual property and

license agreements to which we are a party. In connection with the grant of the security interest,we agreed to certain affirmative and negative covenants, including restrictions on our ability to pay dividends, incur additional debt or enter into licensing transactions with respect toour intellectual property other than specified types of licenses.

Future debt securities or other financing arrangements could contain similar or more restrictive negative covenants. In addition, securing financing could require a substantial amount of time and attention from our management and may divert a disproportionate amount of their attention away from day-to-day activities, which may adversely affect our management's ability to oversee the development of our product candidates.

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

If we receive regulatory approval for the use of APL-2 as a treatment for PNH or if our agreement with SFJ is terminated prior to receiving such approval in specified circumstances, we will be required to make substantial payments to SFJ pursuant to our development funding agreement. If we do not have sufficient funding or cash flow from our business to meet our payment obligations under the development funding agreement, SFJ could exercise its remedies as a holder of a first priority security interest in our assets and our business could be materially harmed.

If we receive regulatory approval for the use of APL-2 as a treatment for PNH, we will be required to make substantial payments to SFJ pursuant to our development funding agreement. In addition, if the agreement is terminated prior to obtaining regulatory approval for the treatment of PNH, under specified circumstances, we also will be required to make substantial payments to SFJ. Our ability to make these required payments depends on our future performance, which is subject to economic, financial, competitive and other factors beyond our control. Our business may generate cash flow from operations in the future sufficient to meet our obligations under the development funding agreement. If we are unable to generate such cash flow or to obtain additional funding through public or private equity offerings, debt financings, collaborations and licensing arrangements or other sources on acceptable terms or at all, we could default on our payment obligations to SFJ. We have granted SFJ a first priority security interest in all of our assets other than our intellectual property and the license agreements to which we are a party. If we are unable to meet our payment obligations to SFJ, SFJ may exercise its remedies as a holder of a first priority security interest, which would result in a loss of our assets and our business would be materially harmed.

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

There are no approved therapies that act by inhibiting C3, and we may not be able to successfully develop and commercialize APL-2 or other product candidates.

APL-2 is a novel therapeutic compound and its potential benefit in controlling autoimmune and inflammatory diseases has not been established. APL-2 is designed to control disease through inhibition of C3. There are no approved therapies that act by inhibiting C3 and only one approved therapy that acts by inhibiting the complement system. As a result, APL-2 may not demonstrate in patients any or all of the pharmacological benefits we believe it may possess. We have not yet demonstrated efficacy and safety for APL-2 or any other product candidates in a pivotal trial or obtained marketing approval of any product candidate. We have evaluated APL-2 in preclinical studies and in clinical trials, and have advanced APL-2 into Phase 3 clinical development in geographic atrophy, or GA, and paroxysmal-nocturnal hemoglobinuria, or PNH, but we have not obtained regulatory approval to sell any product based on our therapeutic approaches.

If we are unsuccessful in our development efforts, we may not be able to advance the development of APL-2 or any other product candidate, commercialize products, raise capital, expand our business or continue our operations.

We are dependent on the successful development and commercialization of our lead product candidate, APL-2. If we are unable to develop, obtain marketing approval for or successfully commercialize this product candidate, either alone or through a collaboration, or if we experience significant delays in doing so, our business could be harmed.

We currently have no products approved for sale and are investing a significant portion of our efforts and financial resources to fund the development of APL-2. Our prospects are substantially dependent on our ability, or that of any future collaborator, to develop, obtain marketing approval for and successfully commercialize APL-2 in one or more disease indications.

The success of APL-2 will depend on several factors, including the following:

- successful recruitment of patients, enrollment in and completion of our ongoing and planned clinical trials;
- initiation and successful recruitment of patients, enrollment in and completion of additional clinical trials;
- safety, tolerability and efficacy profiles that are satisfactory to the U.S. Food and Drug Administration, or FDA, or any comparable foreign regulatory authority for marketing approval;
- our ability to identify success criteria and endpoints for our clinical trials and otherwise design our clinical trials such that the FDA, EMA, and other regulatory authorities will be able to determine the clinical efficacy and safety profile of any product candidates we may develop;
- timely receipt of marketing approvals from applicable regulatory authorities;
- the extent of any required post-marketing approval commitments to applicable regulatory authorities;
- establishment of supply arrangements with third-party suppliers and manufacturers of raw materials and drug intermediates;
- establishment of arrangements with third-party manufacturers to obtain finished products that are appropriately packaged for sale;
- developing, validating and maintaining a commercially viable manufacturing process that is compliant with current good manufacturing practices, or cGMPs;
- the performance of our future collaborators, if any;
- obtaining APL-2 drug product from third-party manufacturers of sufficient quality to be used in our clinical trials and for commercial sale;
- obtaining and maintaining patent, trade secret protection and regulatory exclusivity, both in the United States and internationally;
- protection of our rights in our intellectual property portfolio;
- successful launch of commercial sales following any marketing approval;
- an acceptable safety profile following any marketing approval;
- commercial acceptance of our products, if approved, by patients, the medical community and third-party payors;
- our ability to compete with other therapies; and
- obtaining and maintaining healthcare coverage and adequate reimbursement.

Many of these factors are beyond our control, including clinical development, the regulatory submission process, potential threats to our intellectual property rights and the manufacturing, marketing and sales efforts of any future collaborator. If we are unable to develop, receive marketing approval for and successfully commercialize APL-2 or another product candidate, on our own or with any future collaborator, or experience delays as a result of any of these factors or otherwise, our business could be substantially harmed.

If clinical trials of our product candidates fail to satisfactorily demonstrate safety and efficacy to the FDA and other regulators, we, or any future collaborators, may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development and commercialization of these product candidates.

We, and any future collaborators, are not permitted to commercialize, market, promote or sell any product candidate in the United States without obtaining marketing approval from the FDA. Foreign regulatory authorities, such as the EMA, impose similar requirements. We have not previously submitted a new drug application, or NDA, to the FDA or similar drug approval filings to comparable foreign regulatory authorities for any of our product candidates. We, and any future collaborators, may never receive such approvals. We, and any future collaborators, must complete extensive preclinical development and clinical trials to demonstrate the safety and efficacy of our product candidates in humans before we will be able to obtain these approvals.

Clinical testing is expensive, is difficult to design and implement, can take many years to complete and is inherently uncertain as to outcome. We cannot guarantee that any clinical trials will be conducted as planned or completed on schedule, if at all. The clinical development of our product candidates is susceptible to the risk of failure inherent at any stage of product development, including

failure to demonstrate efficacy in a clinical trial or across a broad population of patients, the occurrence of adverse events that are severe or medically or commercially unacceptable, failure to comply with protocols or applicable regulatory requirements and determination by the FDA or any comparable foreign regulatory authority that a product candidate may not continue development or is not approvable. It is possible that even if one or more of our product candidates has a beneficial effect, that effect will not be detected during clinical evaluation as a result of one or more of a variety of factors, including the size, duration, design, measurements, conduct or analysis of our clinical trials. Conversely, as a result of the same factors, our clinical trials may indicate an apparent positive effect of a product candidate that is greater than the actual positive effect, if any. Similarly, in our clinical trials we may fail to detect toxicity of or intolerability caused by our product candidates, or mistakenly believe that our product candidates are toxic or not well tolerated when that is not in fact the case. Many companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in late-stage clinical trials after achieving positive results in earlier development, and we cannot be certain that we will not face additional setbacks. It is possible that any of our development programs may be placed on full or partial clinical hold by regulatory authorities at any point, which would delay and possibly prevent further development of our product candidates.

In October 2018, we announced that we voluntarily implemented a pause in dosing in our Phase 3 clinical program in patients with GA due to observed cases of non-infectious inflammation in patients treated from a single manufacturing lot of APL-2 intravitreal drug product. We also voluntarily implemented a pause in our Phase 1b/2 trial of APL-2 in patients with wet AMD, which we subsequently discontinued. A total of eight patients, four in the Phase 3 GA program and four in our Phase 1b/2 clinical trial of APL-2 in patients with wet AMD, were treated with APL-2 from this manufacturing lot and each patient developed non-infectious inflammation. Inflammation in all eight patients completely resolved. We reviewed these events with the data safety monitoring board for the ophthalmology program, conducted a series of non-human studies and introduced improvements to the manufacturing process. Based on these efforts, we believe that the likely source of inflammation resided in an impurity in the active pharmaceutical ingredient that was introduced by the scale-up of the manufacturing process to produce commercial lot sizes. We modified our manufacturing process in order to eliminate the impurity and have manufactured sufficient supply of APL-2 utilizing the modified manufacturing process to conduct the Phase 3 GA program. In March 2019, we announced that, with the agreement of the independent safety monitoring committee for our Phase 3 clinical program for APL-2 in patients with GA, we restarted enrollment of our Phase 3 clinical program in GA and expect to have fully enrolled both trials in the GA program by the end of the first quarter of 2020, within the originally planned timeline for completion.

Any inability to successfully complete preclinical and clinical development could result in additional costs to us, or any future collaborators, and impair our ability to generate revenues from product sales, regulatory and commercialization milestones and royalties. Moreover, if we, or any future collaborators, are required to conduct additional clinical trials or other testing of our product candidates beyond the trials and testing that we or they contemplate, if we or they are unable to successfully complete clinical trials of our product candidates or other testing or the results of these trials or tests are unfavorable, uncertain or are only modestly favorable, or there are unacceptable safety concerns associated with our product candidates, we, or any future collaborators may:

- incur additional unplanned costs;
- be delayed in obtaining marketing approval for our product candidates;
- not obtain marketing approval at all;
- obtain approval for indications or patient populations that are not as broad as intended or desired;
- obtain approval with labeling that includes significant use or distribution restrictions or significant safety warnings, including boxed warnings;
- be subject to additional post-marketing testing or other requirements; or
- be required to remove the product from the market after obtaining marketing approval.

In addition, investigators for our clinical trials may serve as scientific advisors or consultants to us from time to time and receive compensation in connection with such services, including equity awards and option grants, and may have other financial interests in our company. We are required to collect and provide financial disclosure notifications or certifications for our clinical investigators to the FDA. If the FDA concludes that a financial relationship between us and a clinical investigator has created a conflict of interest or otherwise affected interpretation of the trial, the FDA may question the integrity of the data generated at the applicable clinical trial site and the utility of the clinical trial itself may be jeopardized. This could result in a delay in approval, or rejection, of our marketing applications by the FDA and may ultimately lead to the denial of marketing approval of our current and future product candidates.

Our failure to successfully complete clinical trials of our product candidates and to demonstrate the efficacy and safety necessary to obtain regulatory approval to market any of our product candidates would significantly harm our business.

Adverse events or undesirable side effects caused by, or other unexpected properties of, any of our product candidates may be identified during development that could delay or prevent their marketing approval or limit their use.

Adverse events or undesirable side effects caused by, or other unexpected properties of, our product candidates could cause us, any future collaborators, an institutional review board or regulatory authorities to interrupt, delay or halt clinical trials of one or more of our product candidates and could result in a more restrictive label, or the delay or denial of marketing approval by the FDA or comparable foreign regulatory authorities. For example, by design APL-2 has immunosuppressive effects and, in some cases, may be administered to patients with underlying significantly compromised health. Administration of our product candidates could make patients more susceptible to infection. We vaccinate subjects against certain bacterial pathogens in all of our ongoing trials involving systemic administration of APL-2. However, there can be no assurance that these efforts will prevent serious adverse effects, including bacterial infection.

In addition, in preclinical studies of APL-2, we observed evidence of minimal to mild kidney toxicity when animals were administered relatively higher doses of APL-2 than the doses we intend to use in the treatment of patients. We believe this kidney toxicity is likely associated with the presence of polyethylene glycol, or PEG, which is a component of APL-2. If such kidney toxicity, or other adverse effects, were to arise in patients being treated with APL-2 or any other of our product candidates, it could require us to halt, delay or interrupt clinical trials of such product candidate or adversely affect our ability to obtain requisite approvals to advance the development and commercialization of such product candidate.

In our Phase 2 trial of APL-2 in patients with GA, the most frequently reported adverse events were associated with the injection procedure in the study eye. These adverse events included two cases of confirmed endophthalmitis, which is inflammation in the eye typically caused by infection, and one case of presumed endophthalmitis where the culture tested negative for bacterial growth. In addition, during the 12-month treatment period and the subsequent six-month period during which no treatment was administered, we observed a higher incidence of new onset exudation, or fluid leakage in the retinas of eyes in which exudation had not previously been reported, in the study eyes treated with APL-2, predominantly in patients with a history of wet AMD in the non-study eye, or fellow eye. Specifically, we observed that, after the 12 month treatment period and the six-month monitoring period, 21% of patients who received administration of APL-2 every month and 9% of patients who received administration of APL-2 every other month showed new onset exudation in the study eye as compared to 1% of the sham group. As we continue development of APL-2 for GA, if a significant number of patients develop new onset exudation, then we may need to limit development of intravitreal APL-2 to certain uses or subpopulations in which the undesirable side effects or other characteristics are less prevalent, less severe or more acceptable from a risk-benefit perspective.

In our Phase 3 clinical trial of APL-2 in patients with GA and our Phase 1b/2 clinical trial of APL-2 in patients with wet AMD, several patients treated from a single manufacturing lot of APL-2 intravitreal drug product experienced non-infectious inflammation. A total of eight patients, four in our Phase 3 GA program and four in our Phase 1b/2 clinical trial of APL-2 in patients with wet AMD, were treated with this APL-2 from this manufacturing lot and each patient developed non-infectious inflammation. Inflammation in these patients has completely resolved.

Serious adverse events have also been reported in our Phase 1b trials of APL-2 for PNH. In our Phase 1b trial of APL-2 in patients receiving treatment with eculizumab, one serious adverse event was noted as possibly related to the administration of APL-2. The patient with this serious adverse event experienced liver pain and elevated liver enzyme levels. As a result, treatment with APL-2 was temporarily discontinued but treatment with eculizumab continued. This discontinuation was followed by a recurrence of anemia and required a blood transfusion, and treatment with APL-2 was reinitiated. Following resumption of treatment, the patient had surgery, which resulted in a lowering of liver enzyme levels. In late October 2017, in our Phase 1b trial of APL-2 in treatment-naïve patients, we learned that one patient with concomitant aplastic anemia developed bone marrow failure after one year of treatment with APL-2. Treatment with APL-2 was discontinued on November 14, 2017. The investigator determined that the bone marrow failure in this patient was not related to the administration of APL-2. Development of bone marrow failure is a known risk in patients with PNH. In third-party studies, bone marrow failure occurred in between 15% and 30% of PNH patients, regardless of treatment with eculizumab. However, there can be no assurance that the administration of APL-2 could not have contributed to the bone marrow failure experienced by this patient.

In addition, in our Phase 1b clinical trial of APL-2 treatment naïve patients with PNH, one patient, who had been temporarily discontinued from dosing with APL-2 due to an unrelated medical condition, experienced increased hemolysis and required a transfusion. This was classified as a serious adverse event unrelated to the administration of APL-2. This patient subsequently recovered and has resumed treatment with APL-2. We believe that a sudden discontinuation of APL-2 may cause increased hemolysis in some patients.

If any of our product candidates is associated with adverse events or undesirable side effects or has properties that are unexpected, we, or any future collaborators, may need to abandon development or limit development of that product candidate to

certain uses or subpopulations in which the undesirable side effects or other characteristics are less prevalent, less severe or more acceptable from a risk-benefit perspective. Many compounds that initially showed promise in clinical or earlier stage testing have later been found to cause undesirable or unexpected side effects that prevented further development of the compound.

In addition, clinical trials by their nature utilize a sample of the potential patient population. However, with a limited number of subjects and limited duration of exposure, rare and severe side effects of our product candidates may only be uncovered when a significantly larger number of patients are exposed to the product. If safety problems occur or are identified after one of our products reaches the market, the FDA or comparable non-U.S. regulatory authorities may require that we amend the labeling of our product, recall our product, or even withdraw approval for our product.

If we, or any future collaborators, experience any of a number of possible unforeseen events in connection with clinical trials of our product candidates, potential clinical development, marketing approval or commercialization of our product candidates could be delayed or prevented.

We, or any future collaborators, may experience numerous unforeseen events during, or as a result of, clinical trials that could delay or prevent clinical development, marketing approval or commercialization of our product candidates, including:

- clinical trials of our product candidates may produce unfavorable or inconclusive results;
- we, or any future collaborators, may decide, or regulators may require us or them, to conduct additional clinical trials or abandon product development programs;
- the number of patients required for clinical trials of our product candidates may be larger than we, or any future collaborators, anticipate, patient enrollment in these clinical trials may be slower than we, or any future collaborators, anticipate or participants may drop out of these clinical trials at a higher rate than we, or any future collaborators, anticipate;
- the cost of planned clinical trials of our product candidates may be greater than we anticipate;
- our third-party contractors or those of any future collaborators, including those manufacturing our product candidates or components or ingredients thereof or conducting clinical trials on our behalf or on behalf of any future collaborators, may deviate from the trial protocol, fail to comply with regulatory requirements or fail to meet their contractual obligations to us or any future collaborators in a timely manner or at all;
- regulators or institutional review boards may not authorize us, any future collaborators or our or their investigators to commence a clinical trial or conduct a clinical trial at a prospective trial site;
- we, or any future collaborators, may have delays in reaching or fail to reach agreement on acceptable clinical trial contracts or clinical trial protocols with prospective trial sites;
- patients that enroll in a clinical trial may misrepresent their eligibility to do so or may otherwise not comply with the clinical trial protocol, resulting in the need to drop the patients from the clinical trial, increase the needed enrollment size for the clinical trial or extend the clinical trial's duration;
- we, or any future collaborators, may have to delay, suspend or terminate clinical trials of our product candidates for various reasons, including a finding that the participants are being exposed to unacceptable health risks, undesirable side effects or other unexpected characteristics of the product candidate;
- regulators or institutional review boards may require that we, or any future collaborators, or our or their investigators suspend or terminate clinical research for various reasons, including noncompliance with regulatory requirements or their standards of conduct, a finding that the participants are being exposed to unacceptable health risks, undesirable side effects or other unexpected characteristics of the product candidate or findings of undesirable effects caused by a chemically or mechanistically similar product or product candidate;
- the FDA or comparable foreign regulatory authorities may disagree with our, or any future collaborators', clinical trial designs or our or their interpretation of data from preclinical studies and clinical trials;
- the FDA or comparable foreign regulatory authorities may fail to approve or subsequently find fault with the manufacturing processes or facilities of third-party manufacturers with which we, or any future collaborators, enter into agreements for clinical and commercial supplies;
- the supply or quality of raw materials, drug intermediates or manufactured product candidates, other products evaluated in our clinical trials or other materials necessary to conduct clinical trials of our product candidates may be insufficient, inadequate or not available at an acceptable cost, or we may experience interruptions in supply; and

- the approval policies or regulations of the FDA or comparable foreign regulatory authorities may significantly change in a manner rendering our clinical data insufficient to obtain marketing approval.

Product development costs for us, or any future collaborators, will increase if we, or they, experience delays in testing or pursuing marketing approvals and we, or they, may be required to obtain additional funds to complete clinical trials and prepare for possible commercialization of our product candidates. We do not know whether any preclinical tests or clinical trials will begin as planned, will need to be restructured, or will be completed on schedule or at all. Significant preclinical study or clinical trial delays also could shorten any periods during which we, or any future collaborators, may have the exclusive right to commercialize our product candidates or allow our competitors, or the competitors of any future collaborators, to bring products to market before we, or any future collaborators, do and impair our ability, or the ability of any future collaborators, to successfully commercialize our product candidates and may harm our business and results of operations. In addition, many of the factors that lead to clinical trial delays may ultimately lead to the denial of marketing approval of any of our product candidates.

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

We, or any future collaborators, may not be able to initiate or continue clinical trials for any of our product candidates if we, or they, are unable to locate and enroll a sufficient number of eligible patients to participate in clinical trials as required by the FDA or comparable foreign regulatory authorities. Patient enrollment is a significant factor in the timing of clinical trials, and is affected by many factors, including:

- the size and nature of the patient population;
- the severity of the disease under investigation;
- the proximity of patients to clinical sites;
- the patient referral practices of physicians;
- the eligibility criteria for the trial;
- the design of the clinical trial;
- efforts to facilitate timely enrollment;
- competing clinical trials; and
- clinicians' and patients' perceptions as to the potential advantages and risks of the drug being studied in relation to other available therapies, including any new drugs that may be approved for the indications we are investigating.

In particular, the successful completion of our clinical development program for APL-2 for the treatment of PNH is dependent upon our ability to enroll a sufficient number of patients with PNH. PNH is a rare disease with a small patient population, and many of those patients are treated with eculizumab (Soliris) or ravulizumab (Ultomiris), both of which are marketed by Alexion Pharmaceuticals, Inc., or Alexion. Further, there are only a limited number of specialist physicians that regularly treat patients with PNH and major clinical centers that support PNH treatment are concentrated in a few geographic regions. In addition, other companies are conducting clinical trials and have announced plans for future clinical trials that are seeking, or are likely to seek, to enroll patients with PNH and patients are generally only able to enroll in a single trial at a time. Both patients and their physicians may be reluctant to forgo, discontinue or otherwise alter existing, approved life-saving therapeutic approaches such as eculizumab. Given the severe and life-threatening nature of PNH and the expectation that many patients will be on treatment with eculizumab, we may encounter difficulty in recruiting a sufficient number of patients for our trials including in particular our planned Phase 3 clinical trial in treatment-naive patients. The small population of patients, competition for these patients, the nature of the disease and limited trial sites may make it difficult for us to enroll enough patients to complete our clinical trials of APL-2 in PNH in a timely and cost-effective manner.

Our inability, or the inability of any future collaborators, to enroll a sufficient number of patients for our, or their, clinical trials could result in significant delays or may require us or them to abandon one or more clinical trials altogether. Enrollment delays in our, or their, clinical trials may result in increased development costs for our product candidates, delay or halt the development of and approval processes for our product candidates and jeopardize our, or any future collaborators', ability to commence sales of and generate revenues from our product candidates, which could cause the value of our company to decline and limit our ability to obtain additional financing, if needed.

Results of preclinical studies and Phase 1 and Phase 2 clinical trials may not be predictive of results of later clinical trials.

The outcome of preclinical studies and Phase 1 and Phase 2 clinical trials may not be predictive of the success of later clinical trials, and preliminary or interim results of clinical trials do not necessarily predict final results. Many companies in the pharmaceutical and biotechnology industries have suffered significant setbacks in late-stage clinical trials after achieving positive results in earlier stages of clinical development, and we could face similar setbacks. Similarly, the design of a clinical trial can determine whether its results will support approval of a product and flaws in the design of a clinical trial may not become apparent until the clinical trial is well advanced.

We have limited experience in designing pivotal clinical trials and may be unable to design and execute a clinical trial to support marketing approval. In addition, preclinical and clinical data are often susceptible to varying interpretations and analyses. Many companies that believed their product candidates performed satisfactorily in preclinical studies and clinical trials have nonetheless failed to obtain marketing approval for the product candidates. Even if we, or any future collaborators, believe that the results of clinical trials for our product candidates warrant marketing approval, the FDA or comparable foreign regulatory authorities may disagree and may not grant marketing approval of our product candidates.

Some of the data we present on the use of APL-2 for the treatment of GA is drawn from*post hoc* analyses of data subsets from our Phase 2 clinical trial. While we believe these data may be useful in informing the design of future Phase 3 clinical trials for APL-2, *post hoc* analyses performed after unmasking trial results can result in the introduction of bias and may not be predictive of success in Phase 3 clinical trials.

In some instances, there can be significant variability in safety or efficacy results between different clinical trials of the same product candidate due to numerous factors, including changes in trial procedures set forth in protocols, differences in the size and type of the patient populations, changes in and adherence to the dosing regimen and other clinical trial protocols and the rate of dropout among clinical trial participants. For instance, the Phase 3 clinical trials in GA are similar in design to the Phase 2 clinical trial, except that patients will be treated with APL-2 for 24 months rather than 12 months and there will not be a six-month monitoring period following treatment. Additionally, unlike the Phase 2 clinical trial, GA lesion size will be measured by total area rather than mean change in the square root of GA lesion size. In our Phase 3 clinical trials in GA, statistical significance is set at a p-value of 0.05 or less, meaning that there is a 1-in-20 or less probability that the observed results occurred by chance rather than as a treatment effect. In our Phase 2 clinical trial, we set statistical significance as a p-value of 0.1 or less, meaning that there is a 1-in-10 or less probability that the observed results occurred by chance. If we fail to receive positive results in clinical trials of our product candidates, the development timeline and regulatory approval and commercialization prospects for our most advanced product candidates, and, correspondingly, our business and financial prospects would be negatively impacted.

If we fail to develop and commercialize other product candidates, we may be unable to grow our business.

Although the development and commercialization of APL-2 is our primary focus, as part of our growth strategy, we are developing a pipeline of product candidates for the treatment of complement-dependent diseases, including APL-9. These other product candidates will require additional, time-consuming and costly development efforts prior to commercial sale, including preclinical studies, clinical trials and approval by the FDA and/or applicable foreign regulatory authorities. All product candidates are prone to the risks of failure that are inherent in pharmaceutical product development, including the possibility that the product candidate will not be shown to be sufficiently safe and effective for approval by regulatory authorities. In addition, there can be no assurance that any such products that are approved will be manufactured or produced economically, successfully commercialized or widely accepted in the marketplace or be more effective than other commercially available alternatives.

We have never obtained marketing approval for a product candidate and we may be unable to obtain, or may be delayed in obtaining, marketing approval for any of our product candidates.

We have never obtained marketing approval for a product candidate. It is possible that the FDA may refuse to accept for substantive review any NDAs that we submit for our product candidates or may conclude after review of our data that our application is insufficient to obtain marketing approval of our product candidates. If the FDA does not accept or approve our NDAs for any of our product candidates, including APL-2, it may require that we conduct additional clinical trials, preclinical studies or manufacturing validation studies and submit that data before it will reconsider our applications. Depending on the extent of these or any other FDA-required trials or studies, approval of any NDA or application that we submit may be delayed by several years, or may require us to expend more resources than we have available. It is also possible that additional trials or studies, if performed and completed, may not be considered sufficient by the FDA to approve our NDAs.

Any delay in obtaining, or an inability to obtain, marketing approvals would prevent us from commercializing our product candidates, generating revenues and achieving and sustaining profitability. If any of these outcomes occur, we may be forced to abandon our development efforts for our product candidates, which could significantly harm our business.

Even if any of our product candidates receives marketing approval, we or others may later discover that the product is less effective than previously believed or causes undesirable side effects that were not previously identified, which could compromise our ability, or that of any future collaborators, to market the product.

Clinical trials of our product candidates are conducted in carefully defined sets of patients who have agreed to enter into clinical trials. Consequently, it is possible that our clinical trials, or those of any future collaborator, may indicate an apparent positive effect of a product candidate that is greater than the actual positive effect, if any, or alternatively fail to identify undesirable side effects. If, following approval of a product candidate, we, or others, discover that the product is less effective than previously believed or causes undesirable side effects that were not previously identified, any of the following adverse events could occur:

- regulatory authorities may withdraw their approval of the product or seize the product;
- we, or any future collaborators, may be required to recall the product, change the way the product is administered or conduct additional clinical trials;
- additional restrictions may be imposed on the marketing of, or the manufacturing processes for, the particular product;
- we may be subject to fines, injunctions or the imposition of civil or criminal penalties;
- regulatory authorities may require the addition of labeling statements, such as a “black box” warning or a contraindication;
- we, or any future collaborators, may be required to create a Medication Guide outlining the risks of the previously unidentified side effects for distribution to patients;
- we, or any future collaborators, could be sued and held liable for harm caused to patients;
- the product may become less competitive; and
- our reputation may suffer.

Any of these events could harm our business and operations, and could negatively impact our stock price.

Even if one of our product candidates receives marketing approval, it may fail to achieve the degree of market acceptance by physicians, patients, third-party payors and others in the medical community necessary for commercial success, in which case we may not generate significant revenues or become profitable.

We have never commercialized a product, and even if one of our product candidates is approved by the appropriate regulatory authorities for marketing and sale, it may nonetheless fail to gain sufficient market acceptance by physicians, patients, third-party payors and others in the medical community. Physicians are often reluctant to switch their patients from existing therapies even when new and potentially more effective or convenient treatments enter the market. Further, patients often acclimate to the therapy that they are currently taking and do not want to switch unless their physicians recommend switching products or they are required to switch therapies due to lack of reimbursement for existing therapies. Eculizumab (marketed as Soliris) and ravulizumab (marketed as Ultomiris) are the only therapies that have been approved for the treatment of PNH, and even if we are able to obtain marketing approval of APL-2 for the treatment of PNH, we may not be able to successfully convince physicians or patients to switch from eculizumab or ravulizumab to APL-2. This may be particularly true with respect to eculizumab as many in the medical community believe that patients with PNH on eculizumab may experience sudden and excessive blood cell lysis, or rupture, leading to anemia, blood clots and other medical problems, when they stop receiving eculizumab. In addition, even if we are able to demonstrate our product candidates’ safety and efficacy to the FDA and other regulators, safety concerns in the medical community may hinder market acceptance.

Efforts to educate the medical community and third-party payors on the benefits of our product candidates may require significant resources and may not be successful. If any of our product candidates is approved but does not achieve an adequate level of market acceptance, we may not generate significant revenues and we may not become profitable. The degree of market acceptance of our product candidates, if approved for commercial sale, will depend on a number of factors, including:

- the efficacy and safety of the product;
- the potential advantages of the product compared to competitive therapies;

- the prevalence and severity of any side effects;
- the clinical indications for which the product is approved;
- whether the product is designated under physician treatment guidelines as a first-, second- or third-line therapy;
- our ability, or the ability of any future collaborators, to offer the product for sale at competitive prices;
- the product's convenience and ease of administration compared to alternative treatments;
- the willingness of the target patient population to try, and of physicians to prescribe, the product;
- limitations or warnings, including distribution or use restrictions contained in the product's approved labeling;
- the strength of sales, marketing and distribution support;
- the approval of other new products for the same indications;
- the timing of market introduction of our approved products as well as competitive products;
- adverse publicity about the product or favorable publicity about competitive products;
- potential product liability claims;
- changes in the standard of care for the targeted indications for the product; and
- availability and amount of coverage and reimbursement from government payors, managed care plans and other third-party payors.

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

Because we have limited financial and managerial resources, we intend to focus on developing product candidates for specific indications that we identify as most likely to succeed, in terms of both their potential for marketing approval and commercialization. As a result, we may forego or delay pursuit of opportunities with other product candidates or for other indications that may prove to have greater commercial potential.

Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs and product candidates for specific indications may not yield any commercially viable product candidates. If we do not accurately evaluate the commercial potential or target market for a particular product candidate, we may relinquish valuable rights to that product candidate through collaboration, licensing or other royalty arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to the product candidate.

If we are unable to establish sales, marketing and distribution capabilities or enter into sales, marketing and distribution arrangements with third parties, we may not be successful in commercializing any product candidates if approved.

We do not have a sales, marketing or distribution infrastructure and have no experience in the sale, marketing or distribution of pharmaceutical products. To achieve commercial success for any approved product, we must either develop a sales and marketing organization or outsource these functions to third parties.

We plan to build focused capabilities to commercialize development programs for certain indications where we believe that the medical specialists for the indications are sufficiently concentrated to allow us to effectively promote the product with a targeted sales team. The development of sales, marketing and distribution capabilities will require substantial resources, will be time-consuming and could delay any product launch. If the commercial launch of a product candidate for which we recruit a sales force and establish marketing and distribution capabilities is delayed or does not occur for any reason, we could have prematurely or unnecessarily incurred these commercialization costs. This may be costly, and our investment could be lost if we cannot retain or reposition our sales and marketing personnel. In addition, we may not be able to hire or retain a sales force in the United States that is sufficient in size or has adequate expertise in the medical markets that we plan to target. If we are unable to establish or retain a sales force and marketing and distribution capabilities, our operating results may be adversely affected. If a potential partner has development or commercialization expertise that we believe is particularly relevant to one of our products, then we may seek to collaborate with that potential partner even if we believe we could otherwise develop and commercialize the product independently.

In certain indications, we may seek to enter into collaborations that we believe may contribute to our ability to advance development and ultimately commercialize our product candidates. We may also seek to enter into collaborations where we believe that realizing the full commercial value of our development programs will require access to broader geographic markets or the pursuit of broader patient populations or indications. As a result of entering into arrangements with third parties to perform sales, marketing

and distribution services, our product revenues or the profitability of these product revenues may be lower, perhaps substantially lower, than if we were to directly market and sell products in those markets. Furthermore, we may be unsuccessful in entering into the necessary arrangements with third parties or may be unable to do so on terms that are favorable to us. In addition, we may have little or no control over such third parties, and any of them may fail to devote the necessary resources and attention to sell and market our products effectively.

If we do not establish sales, marketing and distribution capabilities, either on our own or in collaboration with third parties, we will not be successful in commercializing any of our product candidates that receive marketing approval.

We face substantial competition, which may result in others discovering, developing or commercializing products before or more successfully than we do.

The development and commercialization of new products is highly competitive. We expect that we, and any future collaborators, will face significant competition from major pharmaceutical companies, specialty pharmaceutical companies and biotechnology companies worldwide with respect to any of our product candidates that we, or any future collaborators, may seek to develop or commercialize in the future, including from therapies that act through the complement system and therapies that use different approaches.

There are currently no approved treatments for GA. We are aware that there are a number of companies that are actively developing product candidates for the treatment of GA, including the following product candidates that are in clinical development: CLG561, an anti-properdin monoclonal antibody being developed as a monotherapy or adjunctive therapy with LFG316, an anti-C5 monoclonal antibody being developed by Novartis AG that is in Phase 2 clinical trials; Zimura, a C5 inhibitor being developed by Ophthotech Corporation that is in Phase 2 clinical trials; and other product candidates that do not target the complement system that are in Phase 2 clinical trials, including therapies being developed by Allergan PLC, Ionis Pharmaceuticals, Inc., Janssen Research & Development, LLC, Regenerative Patch Technologies, Stealth BioTherapeutics Corp., Gyroscope Therapeutics, and BioTime, Inc.

The principal competitors for PNH, and possibly other indications in our hematology and nephrology programs are eculizumab (marketed as Soliris) and ravulizumab (marketed as Ultomiris), which are C5 inhibitors marketed by Alexion and are the only drugs approved for the treatment of PNH. Ravulizumab has a longer half-life. dose and schedule than eculizumab.

We are aware of a number of other companies that are actively developing product candidates for the treatment of PNH, including AMY-101, a product candidate directed at C3 complement inhibition that is currently in early clinical development by Amyndas Pharmaceuticals SA; product candidates directed at C5 complement inhibition such as ALN-CC5, an RNAi therapeutic targeting C5 being developed by Alnylam Pharmaceuticals, Inc. that is in early clinical trials; Coversin, a small protein inhibitor of C5 being developed by Akari Therapeutics, Plc. that is in Phase 2 clinical trials; Ra101495, a cyclic peptide inhibitor of C5 that is currently in Phase 2 clinical trials by Ra Pharmaceuticals, Inc., and LFG316, an anti-C5 monoclonal antibody that is currently in Phase 2 clinical trials by Novartis; and other product candidates directed at other mechanisms of complement inhibition such as NM-9405, an anti-properdin antibody in preclinical development by NovelMed Therapeutics, Inc., and ACH-4471 (previously ACH-CFDIS), an orally available small molecule inhibitor of complement factor D, that is currently in early clinical development by Achillion Pharmaceuticals, Inc. Amgen is developing ABP959, a biosimilar for eculizumab that is in Phase 3 development. The approval of a biosimilar or a generic to one of our products or a product with which we compete could have a material impact on our business because it may be significantly less costly to bring to market and may be priced significantly lower than our products or the other products with which we compete.

There are no currently marketed drug treatments for cold agglutinin disease, or CAD, or warm antibody autoimmune hemolytic anemia, or wAIHA, but there are currently treatments in development, including fostamatinib, a spleen tyrosine kinase inhibitor being developed by Rigel Pharmaceuticals, Inc., which is in Phase 2 clinical trials, for CAD and wAIHA, TNT-009/BIVV009, a C1s monoclonal antibody inhibitor, which is being developed by Bioverativ Inc., and is in Phase 3 clinical trials for CAD, and ALXN1830, a humanized monoclonal antibody, which is being developed by Alexion Pharmaceuticals, Inc. and is in Phase 1b/2a clinical trials for wAIHA. There are no currently marketed drug treatments for glomerular diseases with complement involvement, but OMS721, a human monoclonal antibody to mannose-binding lectin-associated serine protease-2 (MASP-2) that blocks the lectin pathway, is being developed by Omeros Corp. as a treatment for IgA nephropathy and is in Phase 3 clinical trials. Furthermore, voclosporin developed by Aurinia Pharmaceuticals for lupus nephritis is in Phase 3 clinical trials, and avacopan, an oral C5aR-inhibitor developed by ChemoCentryx, Inc. for C3 glomerulopathy is in Phase 2 clinical trials.

Our competitors may succeed in developing, acquiring or licensing technologies and products that are more effective, have fewer side effects or more tolerable side effects or are less costly than any product candidates that we are currently developing or that we may develop, which could render our product candidates obsolete and noncompetitive.

Our commercial opportunity could be reduced or eliminated if our competitors develop and commercialize products that are safer, more effective, have fewer or less severe side effects, are more convenient or are less expensive than any products that we, or any future collaborators, may develop. Our competitors also may obtain FDA or other marketing approval for their products before we, or any future collaborators, are able to obtain approval for ours, which could result in our competitors establishing a strong market position before we, or any future collaborators, are able to enter the market.

Many of our existing and potential future competitors have significantly greater financial resources and expertise in research and development, manufacturing, preclinical testing, conducting clinical trials, obtaining marketing approvals and marketing approved products than we do. Mergers and acquisitions in the pharmaceutical and biotechnology industries may result in even more resources being concentrated among a smaller number of our competitors. Smaller or early-stage companies may also prove to be significant competitors, particularly through collaborative arrangements with large and established companies. These competitors also compete with us in recruiting and retaining qualified scientific and management personnel and establishing clinical trial sites and patient registration for clinical trials, as well as in acquiring technologies complementary to, or necessary for, the development of our product candidates.

If the FDA or comparable foreign regulatory authorities approve generic versions of any of our products that receive marketing approval, or such authorities do not grant our products appropriate periods of data exclusivity before approving generic versions of our products, the sales of our products could be adversely affected.

Once an NDA is approved, the product covered thereby becomes a "reference-listed drug" in the FDA's publication, "Approved Drug Products with Therapeutic Equivalence Evaluations," or the Orange Book. Manufacturers may seek approval of generic versions of reference-listed drugs through submission of abbreviated new drug applications, or ANDAs, in the United States. In support of an ANDA, a generic manufacturer need not conduct clinical trials. Rather, the applicant generally must show that its product has the same active ingredient(s), dosage form, strength, route of administration and conditions of use or labeling as the reference-listed drug and that the generic version is bioequivalent to the reference-listed drug, meaning it is absorbed in the body at the same rate and to the same extent. Generic products may be significantly less costly to bring to market than the reference-listed drug and companies that produce generic products are generally able to offer them at lower prices. Thus, following the introduction of a generic drug, a significant percentage of the sales of any branded product or reference-listed drug may be typically lost to the generic product.

The FDA may not approve an ANDA for a generic product until any applicable period of non-patent exclusivity for the reference-listed drug has expired. The Federal Food, Drug, and Cosmetic Act, or FDCA, provides a period of five years of non-patent exclusivity for a new drug containing a new chemical entity, or NCE. Specifically, in cases where such exclusivity has been granted, an ANDA may not be filed with the FDA until the expiration of five years unless the submission is accompanied by a Paragraph IV certification that a patent covering the reference-listed drug is either invalid or will not be infringed by the generic product, in which case the applicant may submit its application four years following approval of the reference-listed drug. It is unclear whether the FDA will treat the active ingredients in our product candidates as NCEs and, therefore, afford them five years of NCE data exclusivity if they are approved. If any product we develop does not receive five years of NCE exclusivity, the FDA may approve generic versions of such product three years after its date of approval, subject to the requirement that the ANDA applicant certifies to any patents listed for our products in the Orange Book. Manufacturers may seek to launch these generic products following the expiration of the applicable marketing exclusivity period, even if we still have patent protection for our product.

Competition that our products may face from generic versions of our products could negatively impact our future revenue, profitability and cash flows and substantially limit our ability to obtain a return on our investments in those product candidates.

Even if we, or any future collaborators, are able to commercialize any product candidate that we, or they, develop, the product may become subject to unfavorable pricing regulations, third-party payor reimbursement practices or healthcare reform initiatives, any of which could harm our business.

The commercial success of our product candidates will depend substantially, both domestically and abroad, on the extent to which the costs of our product candidates will be paid by third-party payors, including government health administration authorities and private health coverage insurers. If coverage and reimbursement is not available, or reimbursement is available only to limited levels, we, or any future collaborators, may not be able to successfully commercialize our product candidates. Even if coverage is provided, the approved reimbursement amount may not be high enough to allow us, or any future collaborators, to establish or maintain pricing sufficient to realize a sufficient return on our or their investments. In the United States, no uniform policy of coverage and reimbursement for products exists among third-party payors and coverage and reimbursement for products can differ significantly from payor to payor. As a result, the coverage determination process is often a time-consuming and costly process that

will require us to provide scientific and clinical support for the use of our products to each payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance.

There is significant uncertainty related to third-party payor coverage and reimbursement of newly approved drugs. Marketing approvals, pricing and reimbursement for new drug products vary widely from country to country. Some countries require approval of the sale price of a drug before it can be marketed. In many countries, the pricing review period begins after marketing or product licensing approval is granted. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we, or any future collaborators, might obtain marketing approval for a product in a particular country, but then be subject to price regulations that delay commercial launch of the product, possibly for lengthy time periods, which may negatively impact the revenues we are able to generate from the sale of the product in that country. Adverse pricing limitations may hinder our ability or the ability of any future collaborators to recoup our or their investment in one or more product candidates, even if our product candidates obtain marketing approval.

Patients who are provided medical treatment for their conditions generally rely on third-party payors to reimburse all or part of the costs associated with their treatment. Therefore, our ability, and the ability of any future collaborators, to commercialize any of our product candidates will depend in part on the extent to which coverage and reimbursement for these products and related treatments will be available from third-party payors. Third-party payors decide which medications they will cover and establish reimbursement levels. The healthcare industry is acutely focused on cost containment, both in the United States and abroad. Government authorities and other third-party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications, which could affect our ability or that of any future collaborators to sell our product candidates profitably. These payors may not view our products, if any, as cost-effective, and coverage and reimbursement may not be available to our customers, or those of any future collaborators, or may not be sufficient to allow our products, if any, to be marketed on a competitive basis. Cost-control initiatives could cause us, or any future collaborators, to decrease the price we, or they, might establish for products, which could result in lower than anticipated product revenues. If the prices for our products, if any, decrease or if governmental and other third-party payors do not provide coverage or adequate reimbursement, our prospects for revenue and profitability will suffer.

The commercial potential of our products depends in part on reimbursement by government health administration authorities, private health insurers and other organizations. If we are unable to obtain coverage or reimbursement for our products, as monotherapy or in combination with other therapies, including possible combinations with eculizumab, at the levels anticipated, our financial condition could be harmed. Additionally, if new compounds currently in development by potential competitors, including biosimilars of eculizumab, obtain marketing approval, there may be downward pressure on reimbursement levels for therapies in our target disease areas, which could have a negative impact on our ability to achieve and maintain profitability.

There may also be delays in obtaining coverage and reimbursement for newly approved drugs, and coverage may be more limited than the indications for which the drug is approved by the FDA or comparable foreign regulatory authorities. Moreover, eligibility for reimbursement does not imply that any drug will be paid for in all cases or at a rate that covers our costs, including research, development, manufacture, sale and distribution. Reimbursement rates may vary, by way of example, according to the use of the product and the clinical setting in which it is used. Reimbursement rates may also be based on reimbursement levels already set for lower cost drugs or may be incorporated into existing payments for other services.

In addition, increasingly, third-party payors are requiring higher levels of evidence of the benefits and clinical outcomes of new technologies and are challenging the prices charged. We cannot be sure that coverage will be available for any product candidate that we, or any future collaborator, commercialize and, if available, that the reimbursement rates will be adequate. Further, the net reimbursement for drug products may be subject to additional reductions if there are changes to laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the United States. An inability to promptly obtain coverage and adequate payment rates from both government-funded and private payors for any of our product candidates for which we, or any future collaborator, obtain marketing approval could significantly harm our operating results, our ability to raise capital needed to commercialize products and our overall financial condition.

Product liability lawsuits against us could divert our resources, cause us to incur substantial liabilities and limit commercialization of any products that we may develop.

We face an inherent risk of product liability claims as a result of the clinical testing of our product candidates despite obtaining appropriate informed consents from our clinical trial participants. We will face an even greater risk if we or any future collaborators commercially sell any product that we may or they may develop. For example, we may be sued if any product we develop allegedly causes injury or is found to be otherwise unsuitable during clinical testing, manufacturing, marketing or sale. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product, negligence, strict liability or a breach of warranties. Claims could also be asserted under state consumer protection acts. If we

cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit commercialization of our product candidates. Regardless of the merits or eventual outcome, liability claims may result in:

- decreased demand for our product candidates or products that we may develop;
- injury to our reputation and significant negative media attention;
- withdrawal of clinical trial participants;
- significant costs to defend resulting litigation;
- substantial monetary awards to trial participants or patients;
- loss of revenue;
- reduced resources of our management to pursue our business strategy; and
- the inability to commercialize any products that we may develop.

Although we maintain product liability insurance coverage in the amount of up to $20.0 million in the aggregate and clinical trial liability insurance of up to $20.0 million in the aggregate, this insurance may not fully cover potential liabilities that we may incur. The cost of any litigation or other proceeding, even if resolved in our favor, could be substantial. We will need to increase our insurance coverage if we commercialize any product that receives marketing approval. In addition, insurance coverage is becoming increasingly expensive. If we are unable to maintain sufficient insurance coverage at an acceptable cost or to otherwise protect against potential product liability claims, it could prevent or inhibit the development and commercial production and sale of our product candidates, which could harm our business, financial condition, results of operations and prospects.

Risks Related to Our Dependence on Third Parties

We rely on third parties to conduct our clinical trials. If they do not perform satisfactorily, our business could be harmed.

We do not independently conduct clinical trials of our product candidates. We rely, and expect to continue to rely, on third parties, such as contract research organizations, clinical data management organizations, medical institutions and clinical investigators, to conduct our clinical trials of APL-2 and any other product candidate that we develop. Any of these third parties may terminate their engagements with us under certain circumstances. We may not be able to enter into alternative arrangements or do so on commercially reasonable terms. In addition, there is a natural transition period when a new contract research organization begins work. As a result, delays would likely occur, which could negatively impact our ability to meet our expected clinical development timelines and harm our business, financial condition and prospects.

Further, although our reliance on these third parties for clinical development activities limits our control over these activities, we remain responsible for ensuring that each of our trials is conducted in accordance with the applicable protocol, legal, regulatory and scientific standards. For example, notwithstanding the obligations of a contract research organization for a trial of one of our product candidates, we remain responsible for ensuring that each of our clinical trials is conducted in accordance with the general investigational plan and protocols for the trial. Moreover, the FDA requires us to comply with standards, commonly referred to as current Good Clinical Practices, or cGCPs, for conducting, recording and reporting the results of clinical trials to assure that data and reported results are credible and accurate and that the rights, integrity and confidentiality of trial participants are protected. The FDA enforces these cGCPs through periodic inspections of trial sponsors, principal investigators, clinical trial sites and institutional review boards. If we or our third-party contractors fail to comply with applicable cGCPs, the clinical data generated in our clinical trials may be deemed unreliable and the FDA may require us to perform additional clinical trials before approving our product candidates, which would delay the marketing approval process. We cannot be certain that, upon inspection, the FDA will determine that any of our clinical trials comply with cGCPs. Similar regulatory requirements apply outside the United States, including the International Council for Harmonisation of Technical Requirements for the Registration of Pharmaceuticals for Human Use, or ICH. We are also required to register clinical trials and post the results of completed clinical trials on a government-sponsored database, ClinicalTrials.gov, within certain timeframes. Failure to do so can result in fines, adverse publicity and civil and criminal sanctions.

Furthermore, the third parties conducting clinical trials on our behalf are not our employees, and except for remedies available to us under our agreements with such contractors, we cannot control whether or not they devote sufficient time, skill and resources to our ongoing development programs. These contractors may also have relationships with other commercial entities, including our competitors, for whom they may also be conducting clinical trials or other drug development activities, which could impede their ability to devote appropriate time to our clinical programs. If these third parties do not successfully carry out their contractual duties, meet expected deadlines or conduct our clinical trials in accordance with regulatory requirements or our stated protocols, we may not

be able to obtain, or may be delayed in obtaining, marketing approvals for our product candidates. If that occurs, we will not be able to, or may be delayed in our efforts to, successfully commercialize our product candidates. In such an event, our financial results and the commercial prospects for any product candidates that we seek to develop could be harmed, our costs could increase and our ability to generate revenues could be delayed, impaired or foreclosed.

We contract with third parties for the manufacture, storage and distribution of our product candidates for clinical trials and expect to continue to do so in connection with our future development and commercialization efforts. This reliance on third parties increases the risk that we will not have sufficient quantities of our product candidates or such quantities at an acceptable cost, which could delay, prevent or impair our development or commercialization efforts.

We currently have no manufacturing facilities, and a relatively small number of personnel with manufacturing experience who can oversee the manufacturing process. We rely on contract manufacturers to manufacture, store and distribute both drug substance and drug product required for our clinical trials. We plan to continue to rely upon contract manufacturers, and, potentially collaboration partners, to manufacture commercial quantities of our products, if approved. We may be unable to establish any agreements with contract manufacturers or to do so on acceptable terms. Even if we are able to establish agreements with contract manufacturers, reliance on contract manufacturers entails additional risks, including:

- manufacturing delays if our third-party contractors give greater priority to the supply of other products over our product candidates or otherwise do not satisfactorily perform according to the terms of the agreements between us and them, or if unforeseen events in the manufacturing process arise;
- the possible termination or nonrenewal of agreements by our third-party contractors at a time that is costly or inconvenient for us;
- the possible breach by the third-party contractors of our agreements with them;
- the failure of third-party contractors to comply with applicable regulatory requirements;
- the possible mislabeling of clinical supplies, potentially resulting in the wrong dose amounts being supplied or active drug or placebo not being properly identified;
- the possibility of clinical supplies not being delivered to clinical sites on time, leading to clinical trial interruptions, or of drug supplies not being distributed to commercial vendors in a timely manner, resulting in lost sales; and
- the possible misappropriation of our proprietary information, including our trade secrets and know-how.

We currently rely, and expect to continue to rely, on a small number of third-party contract manufacturers to supply most of our supply of active pharmaceutical ingredients and required finished product for our preclinical studies and clinical trials. We do not have long-term supply agreements with any of these third parties. If any of our existing manufacturers should become unavailable to us for any reason, we may incur delays in identifying or qualifying replacements. We also rely on other third parties to store and distribute drug supplies for our clinical trials. Any performance failure on the part of our contract manufacturers or distributors could delay clinical development or marketing approval of our product candidates or commercialization of any resulting products, producing additional losses and depriving us of potential product revenue. For example, in the past we experienced issues associated with the manufacturing process for APL-2 that resulted in delays in the supply of APL-2. These delays resulted in us incurring additional costs and delays in our PNH development program. Additionally, in October 2018, we announced that we voluntarily implemented a pause in dosing in our Phase 3 clinical program in patients with GA due to observed cases of non-infectious inflammation in patients treated from a single manufacturing lot of APL-2 intravitreal drug product that we believe occurred due to an impurity in the active pharmaceutical ingredient. We also voluntarily implemented a pause in our Phase 1b/2 trial of APL-2 in patients with wet AMD, which we subsequently discontinued. If we experience other issues or delays in the future, our development of APL-2 may be materially delayed and our business adversely affected.

Any manufacturing problem, the loss of a contract manufacturer or any loss of storage could be disruptive to our operations, delay our clinical trials and, if our products are approved for sale, result in lost sales. Additionally, we rely on third parties to supply the raw materials needed to manufacture our product candidates. For example, one company currently produces most of the PEG that is used in pharmaceutical and drug development globally. PEG is a component of APL-2. If this supplier of PEG experiences manufacturing and supply problems with respect to PEG, then the manufacturers with whom we contract may have difficulty in procuring PEG for the supply and manufacture of APL-2. 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 our contract manufacturing caused by problems at suppliers could delay shipment of our product candidates, increase our cost of goods sold and result in lost sales with respect to any approved products.

If any of our product candidates are approved by any regulatory agency, we will need to enter into agreements with third-party contract manufacturers for the commercial production and distribution of those products. It may be difficult for us to reach agreement with a contract manufacturer on satisfactory terms or in a timely manner. In addition, we may face competition for access to manufacturing facilities as there are a limited number of contract manufacturers operating under cGMPs that can manufacture our product candidates. Consequently, we may not be able to reach agreement with third-party manufacturers on satisfactory terms, which could delay our commercialization efforts.

Third-party manufacturers are required to comply with cGMPs and similar regulatory requirements outside the United States, such as the ICH. Facilities used by our third-party manufacturers must be approved by the FDA after we submit an NDA and before potential approval of the product candidate. Similar regulations apply to manufacturers of our product candidates for use or sale in foreign countries. We do not control the manufacturing process and are completely dependent on our third-party manufacturers for compliance with the applicable regulatory requirements for the manufacture of our product candidates. If our manufacturers cannot successfully manufacture material that conforms to our specifications or the strict regulatory requirements of the FDA and any applicable foreign regulatory authority, they may not be able to meet our supply requirements for clinical and commercial operations and to secure the applicable approval for their manufacturing facilities. If these facilities are not approved for commercial manufacture, we may need to find alternative manufacturing facilities, which could result in delays in obtaining approval for the applicable product candidate.

In addition, our manufacturers are subject to ongoing periodic inspections by the FDA and corresponding state and foreign agencies for compliance with cGMPs and similar regulatory requirements both prior to and following the receipt of marketing approval for any of our product candidates. Some of these inspections may be unannounced. Failure by any of our manufacturers to comply with applicable cGMPs or other regulatory requirements could result in sanctions being imposed on us, including fines, injunctions, civil penalties, delays, suspensions or withdrawals of approvals, operating restrictions, interruptions in supply and criminal prosecutions, any of which could significantly impact the available supplies of our product candidates and harm our business, financial condition and results of operations.

We are developing a custom, on-body drug delivery system that would enable patients to self-administer APL-2 through subcutaneous infusion. While this device is in development, we plan to use one or more commercially available ambulatory infusion pumps in our ongoing and planned clinical trials. The development of a custom drug delivery system may be delayed or we may not be successful in developing a custom drug delivery system and may need to continue to rely on commercially available ambulatory infusion pumps. Any reliance on third-party infusion pumps may involve several risks, including reduced control over costs, delivery schedules, reliability and quality.

Our current and anticipated future dependence upon others for the manufacture of our product candidates may harm our future profit margins and our ability to commercialize any products that receive marketing approval on a timely and competitive basis.

We may seek to establish collaborations and, if we are not able to establish them on commercially reasonable terms, we may have to alter our development and commercialization plans.

We may seek to establish one or more collaborators for the development and commercialization of one or more of our product candidates. Likely collaborators may include large and mid-size pharmaceutical companies, regional and national pharmaceutical companies and biotechnology companies. In addition, if we are able to obtain marketing approval for product candidates from foreign regulatory authorities, we intend to enter into strategic relationships with international biotechnology or pharmaceutical companies for the commercialization of such product candidates outside of the United States.

We face significant competition in seeking appropriate collaborators. Whether we reach a definitive agreement for a collaboration will depend, among other things, upon our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of a number of factors. Those factors may include the potential differentiation of our product candidates from competing product candidates, design or results of clinical trials, the likelihood of approval by the FDA or comparable foreign regulatory authorities and the regulatory pathway for any such approval, the potential market for the product candidate, the costs and complexities of manufacturing and delivering the product to patients and the potential of competing products. The collaborator may also consider alternative product candidates or technologies for similar indications that may be available for collaboration and whether such a collaboration could be more attractive than the one with us for our product candidate. If we elect to increase our expenditures to fund development or commercialization activities on our own, we may need to obtain additional capital, which may not be available to us on acceptable terms or at all. If we do not have sufficient funds, we may not be able to further develop our product candidates or bring them to market and generate product revenue.

Collaborations are complex and time-consuming to negotiate and document. Further, there have been a significant number of recent business combinations among large pharmaceutical companies that have resulted in a reduced number of potential future collaborators.

Any collaboration agreements that we enter into in the future may contain restrictions on our ability to enter into potential collaborations or to otherwise develop specified product candidates. We may not be able to negotiate collaborations on a timely basis, on acceptable terms, or at all. If we are unable to do so, we may have to curtail the development of the product candidate for which we are seeking to collaborate, reduce or delay its development program or one or more of our other development programs, delay its potential commercialization or reduce the scope of any sales or marketing activities, or increase our expenditures and undertake development or commercialization activities at our own expense.

If we enter into collaborations with third parties for the development and commercialization of our product candidates, our prospects with respect to those product candidates will depend in significant part on the success of those collaborations.

We may seek to enter into collaborations for the development and commercialization of certain of our product candidates. Other than our development funding agreement with SFJ, we have not entered into any collaborations to date. If we enter into such collaborations, we will have limited control over the amount and timing of resources that our collaborators will dedicate to the development or commercialization of our product candidates. Our ability to generate revenues from these arrangements will depend on any future collaborators' abilities to successfully perform the functions assigned to them in these arrangements. In addition, any future collaborators may have the right to abandon research or development projects and terminate applicable agreements, including funding obligations, prior to or upon the expiration of the agreed upon terms.

Collaborations involving our product candidates pose a number of risks, including the following:

- collaborators have significant discretion in determining the efforts and resources that they will apply to these collaborations;
- collaborators may not perform their obligations as expected;
- collaborators may not pursue development and commercialization of our product candidates or may elect not to continue or renew development or commercialization programs, based on clinical trial results, changes in the collaborators' strategic focus or available funding or external factors, such as an acquisition, that divert resources or create competing priorities;
- collaborators may delay clinical trials, provide insufficient funding for a clinical trial program, stop a clinical trial or abandon a product candidate, repeat or conduct new clinical trials or require a new formulation of a product candidate for clinical testing;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our product candidates;
- a collaborator with marketing and distribution rights to one or more products may not commit sufficient resources to the marketing and distribution of such product or products;
- disagreements with collaborators, including disagreements over proprietary rights, contract interpretation or the preferred course of development, might cause delays or termination of the research, development or commercialization of product candidates, might lead to additional responsibilities for us with respect to product candidates, or might result in litigation or arbitration, any of which would be time-consuming and expensive;
- collaborators may not properly maintain or defend our intellectual property rights or may use our proprietary information in such a way as to invite litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential litigation;
- collaborators may infringe the intellectual property rights of third parties, which may expose us to litigation and potential liability;
- disputes may arise between the collaborators and us regarding ownership of or other rights in the intellectual property generated in the course of the collaborations; and
- collaborations may be terminated and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable product candidates.

Collaboration agreements may not lead to development or commercialization of product candidates in the most efficient manner or at all. If any future collaborator of ours is involved in a business combination, it could decide to delay, diminish or terminate the development or commercialization of any product candidate licensed to it by us.

Risks Related to Our Intellectual Property

If we fail to comply with our obligations under our existing and any future intellectual property licenses with third parties, we could lose license rights that are important to our business.

We are a party to patent license agreements with Penn under which we license patent rights relating to a family of compounds for use in all fields. The licensed patent rights include issued U.S. and foreign patents with claims that recite a class of compounds generically covering our lead product candidate, APL-2, and that specifically recite APL-1. We may enter into additional license agreements in the future. Our license agreements with Penn impose, and we expect that future license agreements will impose, various diligence, milestone payment, royalty, insurance and other obligations on us. If we fail to comply with our obligations under these licenses, our licensors may have the right to terminate these license agreements, in which event we might not be able to market any product that is covered by these agreements, or our licensors may convert the license to a non-exclusive license, which could negatively impact the value of the product candidate being developed under the license agreement. Termination of these license agreements or reduction or elimination of our licensed rights may also result in our having to negotiate new or reinstated licenses with less favorable terms.

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

Our success depends in large part on our ability to obtain and maintain patent protection in the United States and other countries with respect to our proprietary product candidates. If we do not adequately protect our intellectual property rights, competitors may be able to erode or negate any competitive advantage we may have, which could harm our business and ability to achieve profitability. To protect our proprietary position, we file patent applications in the United States and abroad related to our novel product candidates that are important to our business; we also license or purchase patent applications filed by others. The patent application and approval process is expensive and time-consuming. We may not be able to file and prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner.

Agreements through which we license patent rights may not give us control over patent prosecution or maintenance, so that we may not be able to control which claims or arguments are presented and may not be able to secure, maintain, or successfully enforce necessary or desirable patent protection from those patent rights. We have not had and do not have primary control over patent prosecution and maintenance for certain of the patents and patent applications we license, and therefore cannot guarantee that these patents and applications will be prosecuted in a manner consistent with the best interests of our business. We cannot be certain that patent prosecution and maintenance activities by our licensors have been or will be conducted in compliance with applicable laws and regulations or will result in valid and enforceable patents.

We, or any future partners, collaborators, or licensees, may fail to identify patentable aspects of inventions made in the course of development and commercialization activities before it is too late to obtain patent protection on them. Therefore, we may miss potential opportunities to strengthen our patent position. Moreover, in some circumstances, we might not have the right to control the preparation, filing and prosecution of patent applications, or to maintain the patents, covering any technology that we may license from third parties in the future. These patents and applications may not be prosecuted and enforced in a manner consistent with the best interests of our business. Our license agreements with Penn provide that Penn has the right under certain circumstances to control the preparation, prosecution and maintenance of the underlying patent rights.

It is possible that defects of form in the preparation or filing of our patents or patent applications may exist, or may arise in the future, for example with respect to proper priority claims, inventorship, claim scope, or patent term adjustments. If we or our partners, collaborators, licensees, or licensors, whether current or future, fail to establish, maintain or protect such patents and other intellectual property rights, such rights may be reduced or eliminated. If our partners, collaborators, licensees, or licensors are not fully cooperative or disagree with us as to the prosecution, maintenance or enforcement of any patent rights, such patent rights could be compromised. If there are material defects in the form, preparation, prosecution, or enforcement of our patents or patent applications, such patents may be invalid and/or unenforceable, and such applications may never result in valid, enforceable patents. Any of these outcomes could impair our ability to prevent competition from third parties, which may have an adverse impact on our business.

The patent position of biotechnology and pharmaceutical companies generally is highly uncertain. No consistent policy regarding the breadth of claims allowed in biotechnology and pharmaceutical patents has emerged to date in the United States or in many foreign jurisdictions. In addition, the determination of patent rights with respect to pharmaceutical compounds commonly involves complex legal and factual questions, which has in recent years been the subject of much litigation. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain.

Pending patent applications cannot be enforced against third parties practicing the technology claimed in such applications unless and until a patent issues from such applications. Assuming the other requirements for patentability are met, currently, the first to file a patent application is generally entitled to the patent. However, prior to March 16, 2013, in the United States, the first to invent was entitled to the patent. Publications of discoveries in the scientific literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing, or in some cases not at all. Therefore, we cannot be certain that we were the first to make the inventions claimed in our patents or pending patent applications, or that we were the first to file for patent protection of such inventions. Similarly, we cannot be certain that parties from whom we do or may license or purchase patent rights were the first to make relevant claimed inventions, or were the first to file for patent protection for them. If third parties have filed patent applications on inventions claimed in our patents or applications on or before March 15, 2013, an interference proceeding in the United States can be initiated by such third parties to determine who was the first to invent any of the subject matter covered by the patent claims of our applications. If third parties have filed such applications after March 15, 2013, a derivation proceeding in the United States can be initiated by such third parties to determine whether our invention was derived from theirs.

Moreover, because the issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability, our patents or pending patent applications may be challenged in the courts or patent offices in the United States and abroad. There is no assurance that all of the potentially relevant prior art relating to our patents and patent applications has been found. If such prior art exists, it may be used to invalidate a patent, or may prevent a patent from issuing from a pending patent application. For example, such patent filings may be subject to a third-party preissuance submission of prior art to the U.S. Patent and Trademark Office, or USPTO, or to other patent offices around the world. Alternately or additionally, we may become involved in post-grant review procedures, oppositions, derivations, proceedings, reexaminations, inter partes review or interference proceedings, in the United States or elsewhere, challenging patents or patent applications in which we have rights, including patents on which we rely to protect our business. An adverse determination in any such challenges may result in loss of exclusivity or in patent claims being narrowed, invalidated or held unenforceable, in whole or in part, which could limit our ability to stop others from using or commercializing similar or identical technology and products, or limit the duration of the patent protection of our technology and products. In addition, given the amount of time required for the development, testing and regulatory review of new product candidates, patents protecting such candidates might expire before or shortly after such candidates are commercialized. Furthermore, while it is our policy to require our employees and contractors who may be involved in the conception or development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who, in fact, conceives or develops intellectual property that we regard as our own. As a result, the inventorship or ownership of our intellectual property may be challenged in the future.

Pending and future patent applications may not result in patents being issued which protect our business, in whole or in part, or which effectively prevent others from commercializing competitive products. Our issued patents or any patents that may issue in the future may be invalidated or interpreted narrowly, such that they fail to provide us with any significant competitive advantage. Changes in either the patent laws or interpretation of the patent laws in the United States and other countries may diminish the value of our patents or narrow the scope of our patent protection. In addition, the laws of foreign countries may not protect our rights to the same extent or in the same manner as the laws of the United States. For example, patent laws in various jurisdictions, including significant commercial markets such as Europe, restrict the patentability of methods of treatment of the human body more than United States law does.

Issued patents that we have or may obtain or license may not provide us with any meaningful protection, prevent competitors from competing with us or otherwise provide us with any competitive advantage. Our competitors may be able to circumvent our patents by developing similar or alternative technologies or products in a non-infringing manner. Our competitors may also seek approval to market their own products similar to or otherwise competitive with our products. Alternatively, our competitors may seek to market generic versions of any approved products by submitting ANDAs to the FDA in which they claim that patents owned or licensed by us are invalid, unenforceable or not infringed. In these circumstances, we may need to defend or assert our patents, or both, including by filing lawsuits alleging patent infringement. In any of these types of proceedings, a court or other agency with jurisdiction may find our patents invalid or unenforceable, or find that our competitors are competing in a non-infringing manner. Thus, even if we have valid and enforceable patents, these patents still may not provide protection against competing products or processes sufficient to achieve our business objectives.

Pursuant to the terms of some of our license agreements with third parties, some of our third-party licensors have the right, but not the obligation in certain circumstances to control enforcement of our licensed patents or defense of any claims asserting the invalidity of these patents. Even if we are permitted to pursue such enforcement or defense, we will require the cooperation of our licensors, and cannot guarantee that we would receive it and on what terms. We cannot be certain that our licensors will allocate sufficient resources or prioritize their or our enforcement of such patents or defense of such claims to protect our interests in the licensed patents. If we cannot obtain patent protection, or enforce existing or future patents against third parties, our competitive position and our financial condition could suffer.

If we are unable to protect the confidentiality of our trade secrets, the value of our technology could be negatively impacted and our business would be harmed.

In addition to the protection afforded by patents, we also rely on trade secret protection for certain aspects of our intellectual property. We seek to protect these trade secrets, in part, by entering into non-disclosure and confidentiality agreements with parties who have access to them, such as our employees, consultants, independent contractors, advisors, contract manufacturers, suppliers and other third parties. We also enter into confidentiality and invention or patent assignment agreements with employees and certain consultants. Any party with whom we have executed such an agreement may breach that agreement and disclose our proprietary information, including our trade secrets, and we may not be able to obtain adequate remedies for such breaches. Enforcing a claim that a party illegally disclosed or misappropriated a trade secret is difficult, expensive and time-consuming, and the outcome is unpredictable. Additionally, if the steps taken to maintain our trade secrets are deemed inadequate, we may have insufficient recourse against third parties for misappropriating the trade secret. Further, if any of our trade secrets were to be lawfully obtained or independently developed by a competitor, we would have no right to prevent such third party, or those to whom they communicate such technology or information, from using that technology or information to compete with us. If any of our trade secrets were to be disclosed to or independently developed by a competitor, our business and competitive position could be harmed.

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

Competitors may infringe our patents, trademarks, copyrights or other intellectual property. To counter infringement or unauthorized use, we may be required to file infringement claims, which can be expensive and time consuming and divert the time and attention of our management and scientific personnel. Any claims we assert against perceived infringers could provoke these parties to assert counterclaims against us alleging that we infringe their patents, in addition to counterclaims asserting that our patents are invalid or unenforceable, or both. In any patent infringement proceeding, there is a risk that a court will decide that a patent of ours is invalid or unenforceable, in whole or in part, and that we do not have the right to stop the other party from using the invention at issue. There is also a risk that, even if the validity of such patents is upheld, the court will construe the patent's claims narrowly or decide that we do not have the right to stop the other party from using the invention at issue on the grounds that our patent claims do not cover the invention. An adverse outcome in a litigation or proceeding involving one or more of our patents could limit our ability to assert those patents against those parties or other competitors, and may curtail or preclude our ability to exclude third parties from making and selling similar or competitive products. Similarly, if we assert trademark infringement claims, a court may determine that the marks we have asserted are invalid or unenforceable, or that the party against whom we have asserted trademark infringement has superior rights to the marks in question. In this case, we could ultimately be forced to cease use of such trademarks.

Even if we establish infringement, the court may decide not to grant an injunction against further infringing activity and instead award only monetary damages, which may or may not be an adequate remedy. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during litigation. There could also be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could adversely affect the price of shares of our common stock. Moreover, there can be no assurance that we will have sufficient financial or other resources to file and pursue such infringement claims, which typically last for years before they are concluded. Even if we ultimately prevail in such claims, the monetary cost of such litigation and the diversion of the attention of our management and scientific personnel could outweigh any benefit we receive as a result of the proceedings.

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

Our commercial success depends, in part, on our ability to develop, manufacture, market and sell our product candidates without infringing the intellectual property and other proprietary rights of third parties. Third parties may have U.S. and non-U.S. issued patents and pending patent applications relating to compounds and methods of use for the treatment of the disease indications for which we are developing our product candidates or relating to the use of complement inhibition that may cover our product candidates or approach to complement inhibition. For example, we are aware of a U.S. patent with claims that could be construed to cover APL-2. Although we believe that these claims, if construed to cover APL-2, would be invalid due to various prior art disclosures available more than a year before the priority date of the U.S. patent, there are no assurances that a court would agree. If any third-party patents or patent applications are found to cover our product candidates or their methods of use or our approach to complement inhibition, we may not be free to manufacture or market our product candidates as planned without obtaining a license, which may not be available on commercially reasonable terms, or at all.

There is a substantial amount of intellectual property litigation in the biotechnology and pharmaceutical industries, and we may become party to, or threatened with, litigation or other adversarial proceedings regarding intellectual property rights with respect to our products candidates, including interference proceedings before the USPTO. There may be third-party patents or patent applications with claims to materials, formulations, methods of manufacture or methods for treatment related to the use or manufacture of our product candidates. Because patent applications can take many years to issue, there may be currently pending patent applications which may later result in issued patents that our product candidates may be accused of infringing. In addition, third parties may obtain patents in the future and claim that use of our technologies infringes upon these patents. Accordingly, third parties may assert infringement claims against us based on existing or future intellectual property rights. The outcome of intellectual property litigation is subject to uncertainties that cannot be adequately quantified in advance. The pharmaceutical and biotechnology industries have produced a significant number of patents, and it may not always be clear to industry participants, including us, which patents cover various types of products or methods of use. The coverage of patents is subject to interpretation by the courts, and the interpretation is not always uniform. If we were sued for patent infringement, we would need to demonstrate that our product candidates, products or methods either do not infringe the patent claims of the relevant patent or that the patent claims are invalid or unenforceable, and we may not be able to do this. Proving invalidity is difficult. For example, in the United States, proving invalidity requires a showing of clear and convincing evidence to overcome the presumption of validity enjoyed by issued patents. Even if we are successful in these proceedings, we may incur substantial costs and the time and attention of our management and scientific personnel could be diverted in pursuing these proceedings, which could significantly harm our business and operating results. In addition, we may not have sufficient resources to bring these actions to a successful conclusion.

If we are found to infringe a third party's intellectual property rights, we could be forced, including by court order, to cease developing, manufacturing or commercializing the infringing product candidate or product. Alternatively, we may be required to obtain a license from such third party in order to use the infringing technology and continue developing, manufacturing or marketing the infringing product candidate or product. However, we may not be able to obtain any required license on commercially reasonable terms or at all. Even if we were able to obtain a license, it could be non-exclusive, thereby giving our competitors access to the same technologies licensed to us; alternatively or additionally it could include terms that impede or destroy our ability to compete successfully in the commercial marketplace. In addition, we could be found liable for monetary damages, including treble damages and attorneys' fees if we are found to have willfully infringed a patent. A finding of infringement could prevent us from commercializing our product candidates or force us to cease some of our business operations, which could harm our business. Claims that we have misappropriated the confidential information or trade secrets of third parties could have a similar negative impact on our business.

Some of our intellectual property that was discovered through government-funded programs may be subject to federal regulation such as "march-in" rights, certain reporting requirements, and a preference for U.S. industry. Compliance with such regulations may limit our exclusive rights, subject us to expenditure of resources with respect to reporting requirements and limit our ability to contract with foreign manufacturers.

Some of our in-licensed intellectual property with respect to our product candidates has been funded in part by the U.S. government and, therefore, would be subject to certain federal regulations pursuant to the Bayh-Dole Act of 1980, or the Bayh-Dole Act. As a result, the U.S. government may have certain rights to intellectual property embodied in our current or future product candidates pursuant to the Bayh-Dole Act. For example, under the "march-in" provisions of the Bayh-Dole Act, the U.S. government may have the right under limited circumstances to require the patent owners to grant exclusive, partially exclusive or non-exclusive rights to third parties for intellectual property discovered through the government-funded program. The U.S. government can exercise its march-in rights if it determines that action is necessary because the patent owner fails to achieve practical application of the new invention or because action is necessary to alleviate health concerns or address the safety needs of the public. Intellectual property discovered under the government-funded program is also subject to certain reporting requirements, compliance with which may require us or our licensors to expend substantial resources. Such intellectual property is also subject to a preference for U.S. industry, which may limit our ability to contract with foreign product manufacturers for products covered by such intellectual property. Intellectual property under such discoveries would be subject to the applicable provisions of the Bayh-Dole Act. Similarly, intellectual property that we license in the future may have been made using government funding and may be subject to the provisions of the Bayh-Dole Act.

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

As is the case with other biopharmaceutical companies, our success is heavily dependent on intellectual property, particularly patents. Obtaining and enforcing patents in the biopharmaceutical industry involves both technological and legal complexity and is therefore costly, time consuming and inherently uncertain. Recent patent reform legislation in the United States, including the Leahy-Smith America Invents Act, or the America Invents Act, could increase those uncertainties and costs. The America Invents Act was signed into law on September 16, 2011, and many of the substantive changes became effective on March 16, 2013. The America Invents Act reformed United States patent law in part by changing the U.S. patent system from a "first to invent" system to a "first inventor to file" system, expanding the definition of prior art, and developing a post-grant review system. This legislation changes United States patent law in a way that may weaken our ability to obtain patent protection in the United States for those applications filed after March 16, 2013.

Further, the America Invents Act created new procedures to challenge the validity of issued patents in the United States, including post-grant review and inter partes review proceedings, which some third parties have been using to cause the cancellation of selected or all claims of issued patents of competitors. For a patent with an effective filing date of March 16, 2013 or later, a petition for post-grant review can be filed by a third party in a nine-month window from issuance of the patent. A petition for inter partes review can be filed immediately following the issuance of a patent if the patent has an effective filing date prior to March 16, 2013. A petition for inter partes review can be filed after the nine-month period for filing a post-grant review petition has expired for a patent with an effective filing date of March 16, 2013 or later. Post-grant review proceedings can be brought on any ground of invalidity, whereas inter partes review proceedings can only raise an invalidity challenge based on published prior art and patents. These adversarial actions at the USPTO review patent claims without the presumption of validity afforded to U.S. patents in lawsuits in U.S. federal courts, and use a lower burden of proof than used in litigation in U.S. federal courts. Therefore, it is generally considered easier for a competitor or third party to have a U.S. patent invalidated in a USPTO post-grant review or inter partes review proceeding than invalidated in a litigation in a U.S. federal court. If any of our patents are challenged by a third party in such a USPTO proceeding, there is no guarantee that we or our licensors or collaborators will be successful in defending the patent, which would result in a loss of the challenged patent right to us.

The U.S. Supreme Court has ruled on several patent cases in recent years, either narrowing the scope of patent protection available in certain circumstances or weakening the rights of patent owners in certain situations. Additionally, there have been recent proposals for additional changes to the patent laws of the United States and other countries that, if adopted, could impact our ability to enforce our patents. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents once obtained. Depending on future actions by the U.S. Congress, the U.S. courts, the USPTO and the relevant law-making bodies in other countries, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future.

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

Filing, prosecuting and defending patents on our product candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States are less extensive than those in the United States. The requirements for patentability may differ in certain countries, particularly in developing countries; thus, even in countries where we do pursue patent protection, there can be no assurance that any patents will issue with claims that cover our products. Competitors may use our technologies in jurisdictions where we have not pursued and obtained patent protection to develop their own products and, further, may export otherwise infringing products to territories where we may obtain patent protection, but where patent enforcement is not as strong as that in the United States. These products may compete with our products in jurisdictions where we do not have any issued or licensed patents and any future patent claims or other intellectual property rights may not be effective or sufficient to prevent them from so competing.

Moreover, our ability to protect and enforce our intellectual property rights may be adversely affected by unforeseen changes in foreign intellectual property laws. Additionally, laws of some countries outside of the United States and Europe do not afford intellectual property protection to the same extent as the laws of the United States and Europe. Many companies have encountered significant problems in protecting and defending intellectual property rights in certain foreign jurisdictions. The legal systems of some countries, including India, China and other developing countries, do not favor the enforcement of patents and other intellectual property rights. This could make it difficult for us to stop the infringement of our patents or the misappropriation of our other intellectual property rights. For example, many foreign countries have compulsory licensing laws under which a patent owner must grant licenses to third parties. Consequently, we may not be able to prevent third parties from practicing our inventions in certain countries outside the United States and Europe. Competitors may use our technologies in jurisdictions where we have not obtained patent protection to develop and market their own products and, further, may export otherwise infringing products to territories where we have patent protection, if our ability to enforce our patents to stop infringing activities is inadequate. These products may compete with our products, and our patents or other intellectual property rights may not be effective or sufficient to prevent them from competing.

Agreements through which we license patent rights may not give us sufficient rights to permit us to pursue enforcement of our licensed patents or defense of any claims asserting the invalidity of these patents (or control of enforcement or defense) of such patent rights in all relevant jurisdictions as requirements may vary.

Proceedings to enforce our patent rights in foreign jurisdictions, whether or not successful, could result in substantial costs and divert our efforts and resources from other aspects of our business. Moreover, such proceedings could put our patents at risk of being invalidated or interpreted narrowly and our patent applications at risk of not issuing and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded, if any, may not be commercially meaningful. Furthermore, while we intend to protect our intellectual property rights in major markets for our products, we cannot ensure that we will be able to initiate or maintain similar efforts in all jurisdictions in which we may wish to market our products. Accordingly, our efforts to protect our intellectual property rights in such countries may be inadequate.

If we do not obtain patent term extension and data exclusivity for any product candidates we may develop, our business may be materially harmed.

Depending upon the timing, duration and specifics of any FDA marketing approval of any product candidates we may develop, one or more of our U.S. patents may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Action of 1984, or Hatch-Waxman Amendments. The Hatch-Waxman Amendments permit a patent term extension of up to five years as compensation for patent term lost during the FDA regulatory review process. A patent term extension cannot extend the remaining term of a patent beyond 14 years from the date of product approval, only one patent may be extended and the extension only applies to those claims covering the approved drug, a method for using it, or a method for manufacturing it. However, we may not be granted an extension because of, for example, failing to exercise due diligence during the testing phase or regulatory review process, failing to apply within applicable deadlines, failing to apply prior to expiration of relevant patents, or otherwise failing to satisfy applicable requirements. Moreover, the applicable time period or the scope of patent protection afforded could be less than we request. If we are unable to obtain patent term extension or the term of any such extension is less than we request, our competitors may obtain approval of competing products following our patent expiration, and our business, financial condition, results of operations and prospects could be materially harmed.

We may be subject to claims by third parties asserting that our employees or we have misappropriated their intellectual property, or claiming ownership of what we regard as our own intellectual property.

Many of our employees and our licensors' employees, including our senior management, were previously employed at universities or at other biotechnology or pharmaceutical companies, including some which may be competitors or potential competitors. Some of these employees, including each member of our senior management, executed proprietary rights, non-disclosure, non-competition and non-solicitation agreements, or similar agreements, in connection with such previous employment. Although we try to ensure that our employees do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we or these employees have used or disclosed intellectual property, including trade secrets or other proprietary information, of any such third party. Litigation may be necessary to defend against such claims. If we fail in defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel or sustain damages. Such intellectual property rights could be awarded to a third party, and we could be required to obtain a license from such third party to commercialize our technology or products. Such a license may not be available on commercially reasonable terms or at all. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management.

In addition, while we typically require our employees, consultants and contractors who may be involved in the development of intellectual property to execute agreements assigning such intellectual property to us, we may be unsuccessful in executing such an agreement with each party who in fact develops intellectual property that we regard as our own, which may result in claims by or against us related to the ownership of such intellectual property. If we fail in prosecuting or defending any such claims, in addition to paying monetary damages, we may lose valuable intellectual property rights. Even if we are successful in prosecuting or defending against such claims, litigation could result in substantial costs and be a distraction to our senior management and scientific personnel.

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

Periodic maintenance fees, renewal fees, annuity fees and various other governmental fees on patents and applications are required to be paid to the USPTO and various governmental patent agencies outside of the United States in several stages over the lifetime of the patents and applications. The USPTO and various non-U.S. governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other similar provisions during the patent application process and after a patent has issued. While an inadvertent lapse can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which non-compliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. Non-compliance events that could result in abandonment or lapse of a patent or patent application include, but are not limited to, the failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. If we fail to maintain the patents and patent applications covering our product candidates, our competitive position would be adversely affected.

If we are unable to obtain licenses from third parties on commercially reasonable terms or fail to comply with our obligations under such agreements, our business could be harmed.

It may be necessary for us to use the patented or proprietary technology of third parties to commercialize our products, in which case we would be required to obtain a license from these third parties. If we are unable to license such technology, or if we are forced to license such technology on unfavorable terms, our business could be materially harmed. If we are unable to obtain a necessary license, we may be unable to develop or commercialize the affected product candidates, which could materially harm our business and the third parties owning such intellectual property rights could seek either an injunction prohibiting our sales, or, with respect to our sales, an obligation on our part to pay royalties and/or other forms of compensation. Even if we are able to obtain a license, it may be non-exclusive, which could enable our competitors to obtain access to the same technologies licensed to us.

If we fail to comply with our obligations under license agreements, our counterparties may have the right to terminate these agreements, in which event we might not be able to develop, manufacture or market, or may be forced to cease developing, manufacturing or marketing, any product that is covered by these agreements or may face other penalties under such agreements. Such an occurrence could materially adversely affect the value of the product candidate being developed under any such agreement. Termination of these agreements or reduction or elimination of our rights under these agreements may result in our having to negotiate new or reinstated agreements with less favorable terms, cause us to lose our rights under these agreements, including our rights to important intellectual property or technology, or impede, delay or prohibit the further development or commercialization of one or more product candidates that rely on such agreements.

Risks Related to Regulatory Approval and Marketing of Our Product Candidates and Other Legal Compliance Matters

Even if we complete the necessary preclinical studies and clinical trials, the regulatory approval process is expensive, time consuming and uncertain and may prevent us or any future collaborators from obtaining approvals for the commercialization of some or all of our product candidates. As a result, we cannot predict when or if, and in which territories, we, or any future collaborators, will obtain marketing approval to commercialize a product candidate.

The research, testing, manufacturing, labeling, approval, selling, marketing, promotion and distribution of products are subject to extensive regulation by the FDA and comparable foreign regulatory authorities. We, and any future collaborators, are not permitted to market our product candidates in the United States or in other countries until we, or they, receive approval of an NDA from the FDA or marketing approval from applicable regulatory authorities outside the United States. Our product candidates are in various stages of development and are subject to the risks of failure inherent in drug development. We have not submitted an application for or received marketing approval for any of our product candidates in the United States or in any other jurisdiction. We have limited experience in conducting and managing the clinical trials necessary to obtain marketing approvals, including FDA approval of an NDA.

The process of obtaining marketing approvals, both in the United States and abroad, is lengthy, expensive and uncertain. It may take many years, if approval is obtained at all, and can vary substantially based upon a variety of factors, including the type, complexity and novelty of the product candidates involved. Securing marketing approval requires the submission of extensive preclinical and clinical data and supporting information to regulatory authorities for each therapeutic indication to establish the product candidate's safety and efficacy. Securing marketing approval also requires the submission of information about the product manufacturing process to, and inspection of manufacturing facilities by, the regulatory authorities. The FDA or other regulatory authorities may determine that our product candidates are not safe and effective, only moderately effective or have undesirable or unintended side effects, toxicities or other characteristics that preclude our obtaining marketing approval or prevent or limit commercial use. Any marketing approval we ultimately obtain may be limited or subject to restrictions or post-approval commitments that render the approved product not commercially viable.

In addition, changes in marketing approval policies during the development period, changes in or the enactment or promulgation of additional statutes, regulations or guidance or changes in regulatory review for each submitted product application, may cause delays in the approval or rejection of an application. Regulatory authorities have substantial discretion in the approval process and may refuse to accept any application or may decide that our data are insufficient for approval and require additional preclinical, clinical or other studies. In addition, varying interpretations of the data obtained from preclinical and clinical testing could delay, limit or prevent marketing approval of a product candidate. Any marketing approval we, or any future collaborators, ultimately obtain may be limited or subject to restrictions or post-approval commitments that render the approved product not commercially viable. In addition, to the extent that we seek to develop a combination drug-device product for delivery of a product candidate or we rely on a previously cleared device to deliver a product candidate, we will also be dependent on FDA clearance or approval of such products.

Any delay in obtaining or failure to obtain required approvals and clearances could negatively impact our ability or that of any future collaborators to generate revenue from the particular product candidate, which likely would result in significant harm to our financial position and adversely impact our stock price.

Failure to obtain marketing approval in foreign jurisdictions would prevent our product candidates from being marketed abroad. Any approval we are granted for our product candidates in the United States would not assure approval of our product candidates in foreign jurisdictions.

In order to market and sell our products in the European Union and other foreign jurisdictions, we, and any future collaborators, must obtain separate marketing approvals and comply with numerous and varying regulatory requirements. The approval procedure varies among countries and can involve additional testing. The time required to obtain approval may differ substantially from that required to obtain FDA approval. The marketing approval process outside the United States generally includes all of the risks associated with obtaining FDA approval. In addition, in many countries outside the United States, a product must be approved for reimbursement before the product can be approved for sale in that country. We, and any future collaborators, may not obtain approvals from regulatory authorities outside the United States on a timely basis, if at all. Approval by the FDA does not ensure approval by regulatory authorities in other countries or jurisdictions, and approval by one regulatory authority outside the United States does not ensure approval by regulatory authorities in other countries or jurisdictions or by the FDA. We may file for marketing approvals but not receive necessary approvals to commercialize our products in any market.

Additionally, on June 23, 2016, the electorate in the United Kingdom voted in favor of leaving the European Union, commonly referred to as Brexit. On March 29, 2017, the country formally notified the European Union of its intention to withdraw pursuant to Article 50 of the Lisbon Treaty. The United Kingdom had a period of a maximum of two years from the date of its formal notification to negotiate the terms of its withdrawal from, and future relationship with, the European Union. If no formal withdrawal agreement can be reached between the United Kingdom and the European Union, then it is expected that the United Kingdom's membership of the European Union would automatically terminate on the deadline, which was initially March 29, 2019. That deadline has been extended to October 31, 2019 to allow the parties to negotiate a withdrawal agreement, which has proven to be extremely difficult to date. Discussions between the United Kingdom and the European Union will continue to focus on withdrawal issues and transition agreements. However, limited progress to date in these negotiations and ongoing uncertainty within the government of the United Kingdom sustains the possibility of the United Kingdom leaving the European Union without a withdrawal agreement and associated transition period in place, which is likely to cause significant market and economic disruption.

Since a significant proportion of the regulatory framework in the United Kingdom is derived from European Union directives and regulations, Brexit could materially impact the regulatory regime with respect to the approval of our product candidates in the United Kingdom or the European Union. Any delay in obtaining, or an inability to obtain, any marketing approvals, as a result of Brexit or otherwise, would prevent us from commercializing our product candidates in the United Kingdom and/or the European Union and restrict our ability to generate revenue and achieve and sustain profitability. If any of these outcomes occur, we may be

forced to restrict or delay efforts to seek regulatory approval in the United Kingdom and/or European Union for our product candidates, which could significantly and materially harm our business.

We, or any future collaborators, may not be able to obtain orphan drug designation or orphan drug exclusivity for our product candidates and, even if we do, that exclusivity many not prevent the FDA or the EMA from approving other competing products.

Regulatory authorities in some jurisdictions, including the United States and Europe, may designate drugs for relatively small patient populations as orphan drugs. Under the Orphan Drug Act, the FDA may designate a product as an orphan drug if it is a drug intended to treat a rare disease or condition, which is generally defined as a patient population of fewer than 200,000 individuals annually in the United States. The FDA has granted orphan drug designation to APL-2 for the treatment of PNH and for the treatment of C3 glomerulopathy. We, or any future collaborators, may seek orphan drug designations for other product candidates and may be unable to obtain such designations.

Even if we, or any future collaborators, obtain orphan drug designation for a product candidate, such as is the case for APL-2 for the treatment of PNH, we, or they, may not be able to obtain orphan drug exclusivity for that product candidate. Generally, a product with orphan drug designation only becomes entitled to orphan drug exclusivity if it receives the first marketing approval for the indication for which it has such designation, in which case the FDA or the EMA will be precluded from approving another marketing application for the same drug for that indication for the applicable exclusivity period. The applicable exclusivity period is seven years in the United States and ten years in Europe. The European exclusivity period can be reduced to six years if a drug no longer meets the criteria for orphan drug designation or if the drug is sufficiently profitable so that market exclusivity is no longer justified. Orphan drug exclusivity may be lost if the FDA or the EMA determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the drug to meet the needs of patients with the rare disease or condition.

Even if we, or any future collaborators, obtain orphan drug exclusivity for a product, that exclusivity may not effectively protect the product from competition because different drugs can be approved for the same condition. Even after an orphan drug is approved, the FDA can subsequently approve the same drug for the same condition if the FDA concludes that the later drug is clinically superior in that it is shown to be safer, more effective or makes a major contribution to patient care.

On August 3, 2017, the Congress passed the FDA Reauthorization Act of 2017, or FDARA. FDARA, among other things, codified the FDA's pre-existing regulatory interpretation to require that a drug sponsor demonstrate the clinical superiority of an orphan drug that is otherwise the same as a previously approved drug for the same rare disease in order to receive orphan drug exclusivity. The new legislation reverses prior precedent holding that the Orphan Drug Act unambiguously requires that the FDA recognize the orphan exclusivity period regardless of a showing of clinical superiority. The FDA may further reevaluate the Orphan Drug Act and its regulations and policies. We do not know if, when, or how the FDA may change the orphan drug regulations and policies in the future, and it is uncertain how any changes might affect our business. Depending on what changes the FDA may make to its orphan drug regulations and policies, our business could be adversely impacted.

Fast track designation for one or more of our product candidates may not actually lead to a faster development or regulatory review or approval process.

We have received fast track designations for APL-2 for the treatment of PNH and GA. If a product is intended for the treatment of a serious condition and nonclinical or clinical data demonstrate the potential to address unmet medical need for this condition, a product sponsor may apply for FDA fast track designation. Even though we have received fast track designation for APL-2 for the treatment of PNH and GA, fast track designation does not ensure that we will receive marketing approval or that approval will be granted within any particular timeframe. We may not experience a faster development or regulatory review or approval process with fast rack designation compared to conventional FDA procedures. In addition, the FDA may withdraw fast track designation if it believes that the designation is no longer supported by data from our clinical development program. Fast track designation alone does not guarantee qualification for the FDA's priority review procedures.

Even if we, or any future collaborators, obtain marketing approvals for our product candidates, the terms of approvals and ongoing regulation of our products may limit how we manufacture and market our products, which could impair our ability to generate revenue.

Once marketing approval has been granted, an approved product and its manufacturer and marketer are subject to ongoing review and extensive regulation. We, and any future collaborators, must therefore comply with requirements concerning advertising and promotion for any of our product candidates for which we or they obtain marketing approval. Promotional communications with respect to prescription drugs are subject to a variety of legal and regulatory restrictions and must be consistent with the information in the product's approved labeling. Thus, we and any future collaborators will not be able to promote any products we develop for indications or uses for which they are not approved.

In addition, manufacturers of approved products and those manufacturers' facilities are required to comply with extensive FDA requirements, including ensuring that quality control and manufacturing procedures conform to cGMPs, which include requirements relating to quality control and quality assurance as well as the corresponding maintenance of records and documentation and reporting requirements. We, our contract manufacturers, any future collaborators and their contract manufacturers could be subject to periodic unannounced inspections by the FDA to monitor and ensure compliance with cGMPs.

Accordingly, assuming we, or any future collaborators, receive marketing approval for one or more of our product candidates, we, and any future collaborators, and our and their contract manufacturers will continue to expend time, money and effort in all areas of regulatory compliance, including manufacturing, production, product surveillance and quality control.

If we, and any future collaborators, are not able to comply with post-approval regulatory requirements, we, and any future collaborators, could have the marketing approvals for our products withdrawn by regulatory authorities and our, or any future collaborators', ability to market any future products could be limited, which could adversely affect our ability to achieve or sustain profitability. Further, the cost of compliance with post-approval regulations may have a negative effect on our operating results and financial condition.

Any of our product candidates for which we, or any future collaborators, obtain marketing approval in the future could be subject to post-marketing restrictions or withdrawal from the market and we, or any future collaborators, may be subject to substantial penalties if we, or they, fail to comply with regulatory requirements or if we, or they, experience unanticipated problems with our products following approval.

Any of our product candidates for which we, or any future collaborators, obtain marketing approval, as well as the manufacturing processes, post-approval studies and measures, labeling, advertising and promotional activities for such product, among other things, will be subject to ongoing requirements of and review by the FDA and other regulatory authorities. These requirements include submissions of safety and other post-marketing information and reports, registration and listing requirements, requirements relating to manufacturing, quality control, quality assurance and corresponding maintenance of records and documents, requirements regarding the distribution of samples to physicians and recordkeeping. Even if marketing approval of a product candidate is granted, the approval may be subject to limitations on the indicated uses for which the product may be marketed or to the conditions of approval, including the requirement to implement a Risk Evaluation and Mitigation Strategy.

The FDA may also impose requirements for costly post-marketing studies or clinical trials and surveillance to monitor the safety or efficacy of a product. The FDA and other agencies, including the Department of Justice, closely regulate and monitor the post-approval marketing and promotion of products to ensure that they are manufactured, marketed and distributed only for the approved indications and in accordance with the provisions of the approved labeling. The FDA imposes stringent restrictions on manufacturers' communications regarding off-label use and if we, or any future collaborators, do not market any of our product candidates for which we, or they, receive marketing approval for only their approved indications, we, or they, may be subject to warnings or enforcement action for off-label marketing. Violation of the FDCA and other statutes, including the False Claims Act, relating to the promotion and advertising of prescription drugs may lead to investigations or allegations of violations of federal and state health care fraud and abuse laws and state consumer protection laws.

In addition, later discovery of previously unknown adverse events or other problems with our products or their manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may yield various results, including:

- restrictions on such products, manufacturers or manufacturing processes;
- restrictions on the labeling or marketing of a product;
- restrictions on product distribution or use;
- requirements to conduct post-marketing studies or clinical trials;
- warning letters or untitled letters;
- withdrawal of the products from the market;
- refusal to approve pending applications or supplements to approved applications that we submit;
- recall of products;
- restrictions on coverage by third-party payors;
- fines, restitution or disgorgement of profits or revenues;
- suspension or withdrawal of marketing approvals;

- refusal to permit the import or export of products;
- product seizure; or
- injunctions or the imposition of civil or criminal penalties.

Current and future legislation may increase the difficulty and cost for us and any future collaborators to obtain marketing approval of and commercialize our product candidates and affect the prices we, or they, may obtain.

In the United States and some foreign jurisdictions, there have been and continue to be a number of legislative and regulatory changes and proposed changes regarding the healthcare system that could, among other things, prevent or delay marketing approval of our product candidates, restrict or regulate post-approval activities and affect our ability, or the ability of any future collaborators, to profitably sell any products for which we, or they, obtain marketing approval. We expect that current laws, as well as other healthcare reform measures that may be adopted in the future, may result in more rigorous coverage criteria and in additional downward pressure on the price that we, or any future collaborators, may receive for any approved products.

In March 2010, President Obama signed into law the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010, or collectively the ACA. Among the provisions of the ACA of potential importance to our business and our product candidates are the following:

- an annual, non-deductible fee on any entity that manufactures or imports specified branded prescription drugs and biologic agents;
- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program;
- expansion of healthcare fraud and abuse laws, including the civil False Claims Act and the federal Anti-Kickback Statute, new government investigative powers and enhanced penalties for noncompliance;
- a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% point-of-sale discounts off negotiated prices;
- extension of manufacturers' Medicaid rebate liability;
- expansion of eligibility criteria for Medicaid programs;
- expansion of the entities eligible for discounts under the Public Health Service pharmaceutical pricing program;
- new requirements to report certain financial arrangements with physicians and teaching hospitals;
- a new requirement to annually report drug samples that manufacturers and distributors provide to physicians; and
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research.

In addition, other legislative changes have been proposed and adopted since the ACA was enacted. These changes include the Budget Control Act of 2011, which, among other things, led to aggregate reductions to Medicare payments to providers of up to 2% per fiscal year that started in 2013 and, due to subsequent legislative amendments to the statute, will stay in effect through 2027 unless additional congressional action is taken, and the American Taxpayer Relief Act of 2012, which, among other things, reduced Medicare payments to several types of providers and increased the statute of limitations period for the government to recover overpayments to providers from three to five years. These new laws may result in additional reductions in Medicare and other healthcare funding and otherwise affect the prices we may obtain for any of our product candidates for which we may obtain regulatory approval or the frequency with which any such product candidate is prescribed or used. Further, there have been several recent U.S. congressional inquiries and proposed state and federal legislation designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, reduce the costs of drugs under Medicare and reform government program reimbursement methodologies for drug products.

Since enactment of the ACA, there have been numerous legal challenges and Congressional actions to repeal and replace provisions of the law. For example, with enactment of the Tax Cuts and Jobs Act of 2017, which was signed by the President on December 22, 2017, Congress repealed the "individual mandate." The repeal of this provision, which requires most Americans to carry a minimal level of health insurance, will become effective in 2019. According to the Congressional Budget Office, the repeal of the individual mandate will cause 13 million fewer Americans to be insured in 2027 and premiums in insurance markets may rise. Further, each chamber of the Congress has put forth multiple bills designed to repeal or repeal and replace portions of the ACA. Although none of these measures has been enacted by Congress to date, Congress may consider other legislation to repeal and replace elements of the ACA. The Congress will likely consider other legislation to replace elements of the ACA, during the next

Congressional session. It is possible that repeal and replacement initiatives, if enacted into law, could ultimately result in fewer individuals having health insurance coverage or in individuals having insurance coverage with less generous benefits. While the timing and scope of any potential future legislation to repeal and replace ACA provisions is highly uncertain in many respects, it is also possible that some of the ACA provisions that generally are not favorable for the research-based pharmaceutical industry could also be repealed along with ACA coverage expansion provision. We will continue to evaluate the effect that the ACA and its possible repeal and replacement could have on our business.

The Trump Administration has also taken executive actions to undermine or delay implementation of the ACA. Since January 2017, President Trump has signed two Executive Orders designed to delay the implementation of certain provisions of the ACA or otherwise circumvent some of the requirements for health insurance mandated by the ACA. One Executive Order directs federal agencies with authorities and responsibilities under the ACA to waive, defer, grant exemptions from, or delay the implementation of any provision of the ACA that would impose a fiscal or regulatory burden on states, individuals, healthcare providers, health insurers, or manufacturers of pharmaceuticals or medical devices. The second Executive Order terminates the cost-sharing subsidies that reimburse insurers under the ACA. Several state Attorneys General filed suit to stop the administration from terminating the subsidies, but their request for a restraining order was denied by a federal judge in California on October 25, 2017. In addition, CMS has recently proposed regulations that would give states greater flexibility in setting benchmarks for insurers in the individual and small group marketplaces, which may have the effect of relaxing the essential health benefits required under the ACA for plans sold through such marketplaces. Further, on June 14, 2018, U.S. Court of Appeals for the Federal Circuit ruled that the federal government was not required to pay more than $12 billion in ACA risk corridor payments to third-party payors who argued were owed to them. The effects of this gap in reimbursement on third-party payors, the viability of the ACA marketplace, providers, and potentially our business, are not yet known.

In addition, the Centers for Medicare & Medicaid Services, or CMS, has proposed regulations that would give states greater flexibility in setting benchmarks for insurers in the individual and small group marketplaces, which may have the effect of relaxing the essential health benefits required under the ACA for plans sold through such marketplaces. On November 30, 2018, CMS announced a proposed rule that would amend the Medicare Advantage and Medicare Part D prescription drug benefit regulations to reduce out of pocket costs for plan enrollees and allow Medicare plans to negotiate lower rates for certain drugs. Among other things, the proposed rule changes would allow Medicare Advantage plans to use pre authorization (PA) and step therapy (ST) for six protected classes of drugs, with certain exceptions, permit plans to implement PA and ST in Medicare Part B drugs; and change the definition of "negotiated prices" while a definition of "price concession" in the regulations. It is unclear whether these proposed changes we be accepted, and if so, what effect such changes will have on our business. Litigation and legislation over the ACA are likely to continue, with unpredictable and uncertain results.

Further, on December 14, 2018, a U.S. District Court judge in the Northern District of Texas ruled that the individual mandate portion of the ACA is an essential and inseverable feature of the ACA, and therefore because the mandate was repealed as part of the Tax Cuts and Jobs Act, the remaining provisions of the ACA are invalid as well. The Trump administration and CMS have both stated that the ruling will have no immediate effect, and on December 30, 2018 the same judge issued an order staying the judgment pending appeal. The Trump Administration has recently represented to the Court of Appeals considering this judgment that it does not oppose the lower court's ruling. It is unclear how this decision and any subsequent appeals and other efforts to repeal and replace the ACA will impact the ACA and our business. Litigation and legislation over the ACA are likely to continue, with unpredictable and uncertain results.

The costs of prescription pharmaceuticals have also been the subject of considerable discussion in the United States, and members of Congress and the Administration have stated that they will address such costs through new legislative and administrative measures. To date, there have been several recent U.S. congressional inquiries and proposed and enacted state and federal legislation designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, reduce the costs of drugs under Medicare and reform government program reimbursement methodologies for drug products. At the federal level, the Trump administration's budget proposal for fiscal year 2019 contains further drug price control measures that could be enacted during the 2019 budget process or in other future legislation, including, for example, measures to permit Medicare Part D plans to negotiate the price of certain drugs under Medicare Part B, to allow some states to negotiate drug prices under Medicaid, and to eliminate cost sharing for generic drugs for low-income patients. While any proposed measures will require authorization through additional legislation to become effective, Congress and the Trump administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. At the state level, legislatures are increasingly passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing.

Specifically, there have been several recent U.S. congressional inquiries and proposed federal and proposed and enacted state legislation designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and

manufacturer patient programs, reduce the costs of drugs under Medicare and reform government program reimbursement methodologies for drug products. At the federal level, Congress and the Trump administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. For example, on May 11, 2018, the Administration issued a plan to lower drug prices. Under this blueprint for action, the Administration indicated that the Department of Health and Human Services (HHS) will: take steps to end the gaming of regulatory and patent processes by drug makers to unfairly protect monopolies; advance biosimilars and generics to boost price competition; evaluate the inclusion of prices in drug makers' ads to enhance price competition; speed access to and lower the cost of new drugs by clarifying policies for sharing information between insurers and drug makers; avoid excessive pricing by relying more on value-based pricing by expanding outcome-based payments in Medicare and Medicaid; work to give Part D plan sponsors more negotiation power with drug makers; examine which Medicare Part B drugs could be negotiated for a lower price by Part D plans, and improving the design of the Part B Competitive Acquisition Program; update Medicare's drug-pricing dashboard to increase transparency; prohibit Part D contracts that include "gag rules" that prevent pharmacists from informing patients when they could pay less out-of-pocket by not using insurance; and require that Part D plan members be provided with an annual statement of plan payments, out-of-pocket spending, and drug price increases. More recently, on January 31, 2019, the HHS Office of Inspector General proposed modifications to the federal Anti-Kickback Statute discount safe harbor for the purpose of reducing the cost of drug products to consumers which, among other things, if finalized, will affect discounts paid by manufacturers to Medicare Part D plans, Medicaid managed care organizations and pharmacy benefit managers working with these organizations.

At the state level, individual states are increasingly aggressive in passing legislation and implementing regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. In addition, regional health care authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other health care programs. These measures could reduce the ultimate demand for our products, once approved, or put pressure on our product pricing. We expect that additional state and federal healthcare reform measures will be adopted in the future, any of which could limit the amounts that federal and state governments will pay for healthcare products and services, which could result in reduced demand for our product candidates or additional pricing pressures.

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

Our relationships with customers and third-party payors, among others, will be subject to applicable anti-kickback, fraud and abuse and other healthcare laws and regulations, which could expose us to penalties, including criminal sanctions, civil penalties, contractual damages, reputational harm, fines, disgorgement, exclusion from participation in government healthcare programs, curtailment or restricting of our operations, and diminished profits and future earnings.

Healthcare providers, physicians and third-party payors will play a primary role in the recommendation and prescription of any products for which we obtain marketing approval. Our current and future arrangements with healthcare providers, and third-party payors and customers, if any, will subject us to broadly applicable fraud and abuse and other healthcare laws and regulations. The laws and regulations may constrain the business or financial arrangements and relationships through which we conduct clinical research, market, sell and distribute any products for which we obtain marketing approval. These include the following:

Anti-Kickback Statute. The federal Anti-Kickback Statute prohibits, among other things, persons and entities from knowingly and willfully soliciting, offering, receiving or providing remuneration (including any kickback, bribe or rebate), directly or indirectly, in cash or in kind, to induce or reward, or in return for, either the referral of an individual for, or the purchase, lease or order of a good, facility, item or service for which payment may be made under a federal healthcare program such as Medicare and Medicaid;

False Claims Laws. The federal false claims and civil monetary penalties laws, including the federal civil False Claims Act, impose criminal and civil penalties, including through civil whistleblower or *qui tam* actions against individuals or entities for, among other things, knowingly presenting or causing to be presented false or fraudulent claims for payment by a federal healthcare program or making a false statement or record material to payment of a false claim or avoiding, decreasing or concealing an obligation to pay money to the federal government, with potential liability including mandatory treble damages and significant per-claim penalties;

HIPAA. The federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, imposes criminal and civil liability for, among other things, executing a scheme, or making materially false statements in connection with the delivery of or payment for health care benefits, items, or services. Additionally, HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act and its implementing regulations, also imposes obligations on covered entities and their business associates that perform certain functions or activities that involve the use or disclosure of protected health information on their behalf, including mandatory contractual terms and technical safeguards, with respect to maintaining the privacy, security and transmission of individually identifiable health information;

Transparency Requirements. The federal Physician Payments Sunshine Act requires certain manufacturers of drugs, devices, biologics, and medical supplies for which payment is available under Medicare, Medicaid, or the Children's Health Insurance Program, with specific exceptions, to report annually to the Centers for Medicare & Medicaid Services, or CMS, information related to payments or transfers of value made to physicians and teaching hospitals, as well as information regarding ownership and investment interests held by physicians and their immediate family members; and

Analogous State and Foreign Laws. Analogous state and foreign fraud and abuse laws and regulations, such as state anti-kickback and false claims laws, can apply to sales or marketing arrangements, and claims involving healthcare items or services reimbursed by non-governmental third-party payors, and are generally broad and are enforced by many different federal and state agencies as well as through private actions. Some state laws require pharmaceutical companies to comply with the pharmaceutical industry's voluntary compliance guidelines and the relevant compliance guidance promulgated by the federal government and require drug manufacturers to report information related to payments and other transfers of value to physicians and other healthcare providers or marketing expenditures. Additionally, some state and local laws require the registration of pharmaceutical sales representatives in the jurisdiction. State and foreign laws also govern the privacy and security of health information in some circumstances, many of which differ from each other in significant ways and often are not pre-empted by HIPAA, thus complicating compliance efforts.

Efforts to ensure that our business arrangements with third parties, and our business generally, will comply with applicable healthcare laws and regulations will involve substantial costs. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant civil, criminal and administrative penalties, damages, fines, individual imprisonment, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, exclusion of products from government funded healthcare programs, such as Medicare and Medicaid, disgorgement, contractual damages, reputational harm, and the curtailment or restructuring of our operations. Defending against any such actions can be costly, time-consuming and may require significant financial and personnel resources. Therefore, even if we are successful in defending against any such actions that may be brought against us, our business may be impaired. Further, if any of the physicians or other healthcare providers or entities with whom we expect to do business is found to be not in compliance with applicable laws, they may be subject to criminal, civil or administrative sanctions, including exclusions from government funded healthcare programs.

Laws and regulations governing any international operations we may have in the future may preclude us from developing, manufacturing and selling certain products outside of the United States and require us to develop and implement costly compliance programs.

As we expand our operations outside of the United States, we must dedicate additional resources to comply with numerous laws and regulations in each jurisdiction in which we plan to operate. The Foreign Corrupt Practices Act, or FCPA, prohibits any U.S. individual or business from paying, offering, authorizing payment or offering of anything of value, directly or indirectly, to any foreign official, political party or candidate for the purpose of influencing any act or decision of the foreign entity in order to assist the individual or business in obtaining or retaining business. The FCPA also obligates companies whose securities are listed in the United States to comply with certain accounting provisions requiring the company to maintain books and records that accurately and fairly reflect all transactions of the corporation, including international subsidiaries, and to devise and maintain an adequate system of internal accounting controls for international operations.

Compliance with the FCPA is expensive and difficult, particularly in countries in which corruption is a recognized problem. In addition, the FCPA presents particular challenges in the pharmaceutical industry, because, in many countries, hospitals are operated by the government, and doctors and other hospital employees are considered foreign officials. Certain payments to hospitals in connection with clinical trials and other work have been deemed to be improper payments to government officials and have led to FCPA enforcement actions.

Various laws, regulations and executive orders also restrict the use and dissemination outside of the United States, or the sharing with certain non-U.S. nationals, of information classified for national security purposes, as well as certain products and technical data

relating to those products. As we expand our presence outside of the United States, it will require us to dedicate additional resources to comply with these laws, and these laws may preclude us from developing, manufacturing, or selling certain products and product candidates outside of the United States, which could limit our growth potential and increase our development costs.

The failure to comply with laws governing international business practices may result in substantial civil and criminal penalties and suspension or debarment from government contracting. The Securities and Exchange Commission, or SEC, also may suspend or bar issuers from trading securities on U.S. exchanges for violations of the FCPA's accounting provisions.

If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could harm our business.

We are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. From time to time and in the future, our operations may involve the use of hazardous and flammable materials, including chemicals and biological materials, and may also produce hazardous waste products. Even if we contract with third parties for the disposal of these materials and waste products, we cannot completely eliminate the risk of contamination or injury resulting from these materials. In the event of contamination or injury resulting from the use or disposal of our hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties for failure to comply with such laws and regulations.

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

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

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

In some countries, such as the countries of the European Union, the pricing of prescription pharmaceuticals is subject to governmental control. In these countries, pricing negotiations with governmental authorities can take considerable time after the receipt of marketing approval for a product. To obtain reimbursement or pricing approval in some countries, we, or any future collaborators, may be required to conduct a clinical trial that compares the cost-effectiveness of our product to other available therapies. If reimbursement of our products is unavailable or limited in scope or amount, or if pricing is set at unsatisfactory levels, our business could be harmed.

Risks Related to Employee Matters and Managing Growth

Our future success depends on our ability to retain our executive team and to attract, retain and motivate qualified personnel.

We are highly dependent on the pharmaceutical research and development and business development expertise of our executive team, including Cedric Francois, M.D., Ph.D., our President and Chief Executive Officer, and Pascal Deschatelets, Ph.D., our Chief Operating Officer. The members of our executive team are employed "at will," meaning any of them may terminate his employment with us at any time with or without notice and for any reason or no reason. In the future, we may be dependent on other members of our management, scientific and development team.

Our ability to compete in the biotechnology and pharmaceuticals industries depends upon our ability to attract and retain highly qualified managerial, scientific and medical personnel. Our industry has experienced a high rate of turnover of management personnel in recent years. If we lose one or more of our executive officers or other key employees, our ability to implement our business strategy successfully could be seriously harmed. Furthermore, replacing executive officers or other key employees may be difficult and may take an extended period of time because of the limited number of individuals in our industry with the breadth of skills and experience required to develop, gain marketing approval of and commercialize products successfully. Competition to hire from this limited pool is intense, and we may be unable to hire, train, retain or motivate these additional key employees on acceptable terms given the competition among numerous pharmaceutical and biotechnology companies for similar personnel. We also experience competition for the hiring of scientific and clinical personnel from universities and research institutions.

We rely on consultants and advisors, including scientific and clinical advisors, to assist us in formulating our research and development and commercialization strategy. Our consultants and advisors may be employed by other entities and may have commitments under consulting or advisory contracts with those entities that may limit their availability to us. If we are unable to continue to attract and retain highly qualified personnel, our ability to develop and commercialize our product candidates will be limited.

Our employees, independent contractors, consultants, collaborators and contract research organizations may engage in misconduct or other improper activities, including non-compliance with regulatory standards and requirements, which could cause significant liability for us and harm our reputation.

We are exposed to the risk that our employees, independent contractors, consultants, collaborators and contract research organizations may engage in fraud or other misconduct, including intentional failures to comply with FDA regulations or similar regulations of comparable non-U.S. regulatory authorities, to provide accurate information to the FDA or comparable non-U.S. regulatory authorities, to comply with manufacturing standards we have established, to comply with federal and state healthcare fraud and abuse laws and regulations and similar laws and regulations established and enforced by comparable non-U.S. regulatory authorities, to report financial information or data accurately or to disclose unauthorized activities to us. Such misconduct could also involve the improper use of information obtained in the course of clinical trials, which could result in regulatory sanctions and serious harm to our reputation. It is not always possible to identify and deter misconduct, and the precautions we take to detect and prevent this activity may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws, standards or regulations. If any such actions are instituted against us, and we are not successful in defending ourselves or asserting our rights, those actions could have a significant impact on our business and results of operations, including the imposition of significant criminal, civil and administrative sanctions including monetary penalties, damages, fines, disgorgement, individual imprisonment, and exclusion from participation in government funded healthcare programs, such as Medicare and Medicaid, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, reputational harm, and we may be required to curtail or restructure our operations.

We expect to continue to expand our organization, and as a result, we may encounter difficulties in managing our growth, which could disrupt our operations.

We expect to continue to experience significant growth in the number of our employees and the scope of our operations, particularly in the areas of drug manufacturing, clinical, regulatory affairs and sales, marketing and distribution.The number of our employees has increased from 59 on June 30, 2018 to 122 on June 30, 2019. Our headquarters are located in Kentucky and we maintain additional offices in Massachusetts and California. To manage these growth activities and separation of offices, we must continue to implement and improve our managerial, operational and financial systems and continue to recruit and train additional qualified personnel. Our management may need to devote a significant amount of its attention to managing these growth activities. Due to our limited financial resources and the limited experience of our management team in managing a company with such anticipated growth, we may not be able to effectively manage the expansion of our operations, retain key employees, or identify, recruit and train additional qualified personnel. Our inability to manage the expansion of our operations effectively may result in weaknesses in our infrastructure, give rise to operational mistakes, loss of business opportunities, loss of employees and reduced productivity among remaining employees. Our expected growth could also require significant capital expenditures and may divert financial resources from other projects, such as the development of additional product candidates. If we are unable to effectively manage our expected growth, our expenses may increase more than expected, our ability to generate revenues could be reduced and we may not be able to implement our business strategy, including the successful commercialization of our product candidates.

We may engage in acquisitions that could disrupt our business, cause dilution to our stockholders or reduce our financial resources.

In the future, we may enter into transactions to acquire other businesses, products or technologies. Because we have not made any acquisitions to date, our ability to do so successfully is unproven. If we do identify suitable candidates, we may not be able to make such acquisitions on favorable terms, or at all. Any acquisitions we make may not strengthen our competitive position, and these transactions may be viewed negatively by customers or investors. We may decide to incur debt in connection with an acquisition or issue our common stock or other equity securities to the stockholders of the acquired company, which would reduce the percentage ownership of our existing stockholders. We could incur losses resulting from undiscovered liabilities of the acquired business that are not covered by the indemnification we may obtain from the seller. In addition, we may not be able to successfully integrate the acquired personnel, technologies and operations into our existing business in an effective, timely and non-disruptive manner. Acquisitions may also divert management attention from day-to-day responsibilities, increase our expenses and reduce our cash

available for operations and other uses. We cannot predict the number, timing or size of future acquisitions or the effect that any such transactions might have on our operating results.

Risks Related to Ownership of Our Common Stock

An active trading market for our common stock may not be sustainable. If an active trading market is not sustained, our ability to raise capital in the future may be impaired.

Our shares began trading on the Nasdaq Global Select Market on November 9, 2017. Given the limited trading history of our common stock, there is a risk that an active trading market for our shares may not be sustained, which could put downward pressure on the market price of our common stock and thereby affect the ability of stockholders to sell their shares. An inactive trading market for our common stock may also impair our ability to raise capital to continue to fund our operations by selling shares and impair our ability to acquire other companies or technologies by using our shares as consideration.

The trading price of our common stock is highly volatile, which could result in substantial losses for our stockholders.

The trading price of our common stock has been, and is likely to continue to be, highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control. The stock market in general and the market for smaller pharmaceutical and biotechnology companies in particular have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, our stockholders may not be able to sell their common stock at or above the price they paid for their common stock. The market price for our common stock may be influenced by many factors, including:

- the timing and results of clinical trials of APL-2 and any other product candidates;
- the success of existing or new competitive products or technologies;
- regulatory actions with respect to our product candidates or our competitors' products and product candidates;
- announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures, collaborations or capital commitments;
- commencement or termination of collaborations for our development programs;
- failure or discontinuation of any of our product candidates or development programs;
- results of clinical trials of product candidates of our competitors;
- regulatory or legal developments in the United States and other countries;
- developments or disputes concerning patent applications, issued patents or other proprietary rights;
- the recruitment or departure of key personnel;
- the level of expenses related to any of our product candidates or clinical development programs;
- the results of our efforts to develop additional product candidates or products;
- actual or anticipated changes in estimates as to financial results or development timelines;
- recommendations by securities analysts;
- announcement or expectation of additional financing efforts;
- sales of our common stock by us, our insiders or other stockholders;
- variations in our financial results or those of companies that are perceived to be similar to us;
- changes in estimates or recommendations by securities analysts, if any, that cover our stock;
- changes in the structure of healthcare payment systems;
- market conditions in the pharmaceutical and biotechnology sectors;
- general economic, industry and market conditions; and
- the other factors described in this "Risk Factors" section.

We could be subject to securities class action litigation.

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

We have broad discretion in the use of our funds and may not use them effectively.

Our management will have broad discretion in the application of our cash and cash equivalents and could spend our funds in ways that do not improve our results of operations or enhance the value of our common stock. The failure by our management to apply these funds effectively could result in financial losses that could harm our business, cause the price of our common stock to decline and delay the development of our product candidates. Pending their use, we may invest our funds in a manner that does not produce income or that loses value.

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

As a public company, we incur significant legal, accounting and other expenses that we did not incur as a private company. The Sarbanes-Oxley Act of 2002, the Dodd-Frank Wall Street Reform and Consumer Protection Act, the listing requirements of the Nasdaq Global Select Market and other applicable securities rules and regulations impose various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. We expect that we will need to hire additional accounting, finance and other personnel in connection with our efforts to comply with the requirements of being a public company and our management and other personnel will need to devote a substantial amount of time towards maintaining compliance with these requirements. These requirements will increase our legal and financial compliance costs and will make some activities more time-consuming and costly, especially as we are no longer an "emerging growth company", as defined in the Jumpstart Our Business Startups Act of 2012, and are no longer able to take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are "emerging growth companies" and were applicable to us prior to January 1, 2019.

Pursuant to SOX Section 404, as of January 1, 2019, we are required to furnish with our periodic Exchange Act reports a report by our management on our internal control over financial reporting. As of December 31, 2018, because we are no longer an emerging growth company, we are required to include with our annual report an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. To achieve compliance with SOX Section 404 within the prescribed period, we have been engaged in a process to document and evaluate our internal control over financial reporting, which has been, and will continued to be, both costly and challenging. In this regard, we will need to continue to dedicate internal resources, engage outside consultants and adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are functioning as documented and implement a continuous reporting and improvement process for internal control over financial reporting. Despite our efforts, there is a risk that we will not be able to conclude, from time to time, that our internal control over financial reporting is effective. If we identify one or more material weaknesses, it could result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statements.

If we identify a material weakness in our internal control over financial reporting, it could have an adverse effect on our business and financial results and our ability to meet our reporting obligations could be negatively affected, each of which could negatively affect the trading price of our common stock.

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected on a timely basis. Accordingly, a material weakness increases the risk that the financial information we report contains material errors.

We regularly review and update our internal controls, disclosure controls and procedures, and corporate governance policies. In addition, we are required under the Sarbanes-Oxley Act of 2002 to report annually on our internal control over financial reporting. Our system of internal controls, however well-designed and operated, is based in part on certain assumptions and includes elements that rely on information from third parties. Our system can provide only reasonable, not absolute, assurances that the objectives of the system are met. If we, or our independent registered public accounting firm, determine that our internal controls over financial

reporting are not effective, or we discover areas that need improvement in the future, these shortcomings could have an adverse effect on our business and financial results, and the price of our common stock could be negatively affected.

If we cannot conclude that we have effective internal control over our financial reporting, or if our independent registered public accounting firm is unable to provide an unqualified opinion regarding the effectiveness of our internal control over financial reporting, investors could lose confidence in the reliability of our financial statements, which could lead to a decline in our stock price. Failure to comply with reporting requirements could also subject us to sanctions and/or investigations by the SEC, The Nasdaq Stock Market or other regulatory authorities.

A significant portion of our total outstanding shares is restricted from immediate resale but may be sold into the market in the near future, which could cause the market price of our common stock to decline significantly, even if our business is doing well.

Sales of a substantial number of shares of our common stock in the public market could occur at any time. These sales, or the perception in the market that the holders of a large number of shares of common stock intend to sell shares, could reduce the market price of our common stock. As of June 30, 2019, we had 63,672,430 shares of common stock outstanding. All of these shares may be freely sold in the public market at any time to the extent permitted by Rules 144 and 701 under the Securities Act of 1933, as amended, or the Securities Act and subject to the volume limitations applicable to affiliates.

We have registered all shares of common stock that we may issue under our equity compensation plans. As of June 30, 2019, we had options to purchase an aggregate of 9,094,586 shares of our common stock outstanding, of which options to purchase 4,373,493 shares were vested. These shares can be freely sold in the public market upon issuance, subject to volume limitations applicable to affiliates. Moreover, holders of an aggregate of 11,178,984 shares of our common stock have rights, subject to conditions, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or other stockholders. If these additional shares are sold, or if it is perceived that they will be sold, in the public market, the trading price of our common stock could decline.

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

On December 22, 2017, President Trump signed into law new legislation, commonly referred to as the Tax Cuts and Jobs Act, or the TCJA, that significantly revised the Internal Revenue Code of 1986, as amended. The TCJA, among other things, contains significant changes to corporate taxation, including reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, limitation of the tax deduction for interest expense to 30% of adjusted earnings (except for certain small businesses), limitation of the deduction for net operating losses to 80% of current year taxable income and elimination of net operating loss carrybacks, one time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, elimination of U.S. tax on foreign earnings (subject to certain important exceptions), immediate deductions for certain new investments instead of deductions for depreciation expense over time, and modifying or repealing many business deductions and credits. Notwithstanding the reduction in the corporate income tax rate, the overall impact of the federal tax law remains uncertain and our business and financial condition could be adversely affected. In addition, how various states will respond to the TCJA continues to be uncertain. The impact of this tax reform on holders of our common stock is also uncertain and could be adverse. We urge our stockholders to consult with their legal and tax advisors with respect to this legislation and the potential tax consequences of investing in or holding our common stock.

We might not be able to utilize a significant portion of our net operating loss carryforwards and research and development tax credit carryforwards.

As of December 31, 2018, we had both federal and state net operating loss carryforwards of $251.4 million and $254.6 million, respectively, and federal research and development tax credit carryforwards of $14.4 million, all of which if not utilized will begin to expire in 2024. These net operating loss and tax credit carryforwards could expire unused and be unavailable to offset future income tax liabilities. Under the newly enacted federal income tax law, federal net operating losses incurred in 2018 and in future years may be carried forward indefinitely, but the deductibility of such federal net operating losses is limited. It is uncertain if and to what extent various states will conform to the newly enacted federal tax law. In addition, under Section 382 of the Internal Revenue Code of 1986, as amended, and corresponding provisions of state law, if a corporation undergoes an “ownership change,” which is generally defined as a greater than 50% change, by value, in its equity ownership over a three-year period, the corporation’s ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes to offset its post-change income may be limited. We experienced a Section 382 ownership change in September 2015, which imposes annual limitations on our use of pre-change net operating loss carryforwards and other pre-change tax attributes. In addition, we may experience ownership changes in the future as a result of subsequent shifts in our stock ownership, some of which may be outside of our control. We have determined that our research and development credit carryforwards are also limited. These limitations upon our historical net operating loss and tax credit carryforwards may harm our future operating results by effectively increasing our future tax obligations.

We do not anticipate paying any cash dividends on our capital stock in the foreseeable future. Accordingly, stockholders must rely on capital appreciation, if any, for any return on their investment.

We have never declared nor paid cash dividends on our capital stock. We currently plan to retain all of our future earnings, if any, to finance the operation, development and growth of our business. In addition, the terms of our development funding agreement with SFJ preclude us from paying dividends, and any future debt or credit agreements may also preclude us from paying dividends. As a result, capital appreciation, if any, of our common stock will be our stockholders' sole source of gain for the foreseeable future.

Concentration of ownership of our common stock among our existing executive officers, directors and principal stockholders may prevent new investors from influencing significant corporate decisions.

As of June 30, 2019, our executive officers and directors, and entities associated or affiliated with our executive officers and directors, in the aggregate, beneficially owned shares representing approximately 28.6% of our outstanding common stock, including our largest stockholder, Morningside Venture Investments, Ltd., which beneficially owned approximately 18.9% of our outstanding common stock. As a result, if these stockholders were to choose to act together, they may have the ability to significantly influence all matters submitted to our stockholders for approval, as well as our management and affairs. For example, these persons, if they choose to act together, could substantially influence the election of directors and approval of any merger, consolidation or sale of all or substantially all of our assets. This concentration of ownership may:

- delay, defer or prevent a change in control;
- entrench our management or the board of directors; or
- impede a merger, consolidation, takeover or other business combination involving us that other stockholders may desire.

Some of these persons or entities may have interests different than those of our other investors. For example, because many of these stockholders purchased their shares at prices substantially below the price at which other investors purchased shares and have held their shares for a longer period, they may be more interested in selling our company to an acquirer than other investors or they may want us to pursue strategies that deviate from the interests of other stockholders.

Provisions in our corporate charter documents and under Delaware law may prevent or frustrate attempts by our stockholders to change our management or hinder efforts to acquire a controlling interest in us.

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

- establish a classified board of directors such that all members of the board are not elected at one time;
- allow the authorized number of our directors to be changed only by resolution of our board of directors;
- limit the manner in which stockholders can remove directors from the board;
- establish advance notice requirements for nominations for election to the board of directors or for proposing matters that can be acted on at stockholder meetings;
- require that stockholder actions must be effected at a duly called stockholder meeting and prohibit actions by our stockholders by written consent;
- limit who may call a special meeting of stockholders;
- authorize our board of directors to issue preferred stock without stockholder approval, which could be used to institute a "poison pill" that would work to dilute the stock ownership of a potential hostile acquirer, effectively preventing acquisitions that have not been approved by our board of directors; and
- require the approval of the holders of at least 75% of the votes that all our stockholders would be entitled to cast to amend or repeal certain provisions of our charter or bylaws.

Moreover, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the General Corporation Law of the State of Delaware, which prohibits a person who owns in excess of 15% of our outstanding voting stock from

merging or combining with us for a period of three years after the date of the transaction in which the person acquired in excess of 15% of our outstanding voting stock, unless the merger or combination is approved in a prescribed manner. This could discourage, delay or prevent someone from acquiring us or merging with us, whether or not it is desired by, or beneficial to, our stockholders. This could also have the effect of discouraging others from making tender offers for our common stock, including transactions that may be in the best interests of our stockholders. These provisions may also prevent changes in our management or limit the price that investors are willing to pay for our stock.

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

The trading market for our common stock will likely depend in part on the research and reports that securities or industry analysts publish about us or our business. We do not have any control over these analysts. There can be no assurance that analysts will continue to cover us or provide favorable coverage. Securities or industry analysts may elect not to provide research coverage of our common stock, and such lack of research coverage may negatively impact the market price of our common stock. In the event we do have analyst coverage, if one or more analysts downgrade our stock or change their opinion of our stock, our share price would likely decline. In addition, if one or more analysts cease coverage of our company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our share price or trading volume to decline.

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

Our restated certificate of incorporation provides that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware (or, if the Court of Chancery does not have jurisdiction, the federal district court for the District of Delaware) will be the sole and exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or employees to our company or our stockholders, any action asserting a claim against us arising pursuant to any provision of the General Corporation Law of the State of Delaware or our certificate of incorporation or bylaws, or any action asserting a claim against us governed by the internal affairs doctrine. This exclusive forum provision may limit the ability of our stockholders to bring a claim in a judicial forum that such stockholders find favorable for disputes with us or our directors, officers or employees, which may discourage such lawsuits against us and our directors, officers and employees.

Item 6. Exhibits.

Exhibit Number	Description
10.1*†	Amendment, dated as of June 7, 2019, to the Development Funding Agreement, dated as of February 28, 2019 by and between the Registrant and SFJ Pharmaceuticals XI, L.I
10.2*	Second Amendment to Lease, dated June 5, 2019, by and between Registrant and NWALP PHOP Property Owner LLC.
31.1*	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1*	Certification of Principal Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2*	Certification of Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS	XBRL Instance Document – the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

* Filed herewith.
† Portions of this exhibit have been omitted pursuant to Item 601(b)(10)(iv) of Regulation S-K

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.

Apellis Pharmaceuticals, Inc.

Date: July 31, 2019

By: /s/ Cedric Francois
Cedric Francois
President and Chief Executive Officer
(principal executive officer)

Date: July 31, 2019

By: /s/ Timothy Sullivan
Timothy Sullivan
Chief Financial Officer and Treasurer
(principal financial officer)

Exhibit 10.1

Certain identified information has been excluded from the exhibit because it is both (i) not material and (ii) would likely cause competitive harm to the Company, if publicly disclosed. Double asterisks denote omissions.

AMENDMENT TO DEVELOPMENT FUNDING AGREEMENT

This Amendment to Development Funding Agreement ("Amendment"), made effective as of June 7, 2019 (the "Amendment Date"), entered into by and between Apellis Pharmaceuticals Inc., a Delaware corporation, with a principal place of business at 6400 Westwind Way, Suite A, Crestwood, KY 40014, USA ("Apellis"), and SFJ Pharmaceuticals XI, L.P. ("SFJ"), an SFJ Pharmaceuticals® company and limited partnership organized and existing under the laws of Delaware, having its principal place of business at 5000 Hopyard Road, Suite 330, Pleasanton, CA 94588, USA, amends that certain Development Funding Agreement dated as of February 28, 2019 (the "Agreement"), by and between Apellis and SFJ.

WHEREAS, Apellis and SFJ desire to increase the amount of financing that SFJ will provide to Apellis for the development of the Product as a treatment for patients with PNH as well as to make certain other amendments;

NOW THEREFORE, in consideration of the mutual agreements contained herein and other good and valuable consideration, the sufficiency of which is hereby acknowledged, the Parties agree as follows:

PART 1

DEFINITIONS

1.1 Capitalized terms used but not defined herein shall have meanings ascribed to them in the Agreement.

PART 2

AMENDMENTS TO AGREEMENT

2.1 Section 4.1.1 of the Agreement is hereby amended and restated in its entirety as set forth below:

"4.1.1 SFJ will be obligated to pay One Hundred Forty Million U.S. Dollars ($140,000,000.00) ("Maximum SFJ Development Costs") to Apellis in accordance with the funding schedule set forth in Section 4.2. Subject to Section 4.3, any Apellis Development Costs in excess of the Maximum SFJ Development Costs will be borne by Apellis."

2.2 Section 4.2 of the Agreement is hereby amended and restated in its entirety as set forth below:

"4.2 Funding Schedule. SFJ will pay to Apellis the amounts of Apellis Development Costs set forth in the table below on or before (but not earlier than [**] before) the

corresponding funding dates (each, a "Funding Date") set forth in the table below. Notwithstanding the foregoing, in no event shall SFJ be obligated to pay to Apellis funding payments #3, #4 and #5 as set forth in the table below until [**] after the date Apellis shall have notified SFJ that Apellis has achieved the corresponding milestones listed on Exhibit M (if any) for such funding payments, respectively.

Funding Schedule:

To be paid on or before the Initial Funding Date (funding payment #1)	**To be paid on or before the Subsequent Funding Date (funding payment #2)**	**To be paid on or before [**] (funding payment #3)**	**To be paid on or before [**] (funding payment #4)**	**To be paid on or before [**] (funding payment #5)**	**Total**
$60 Million	$20 Million	$20 Million	$20 Million	$20 Million	$140 Million

The initial payment of Sixty Million U.S. Dollars ($60,000,000.00) set forth in the table above shall be payable on or before the date (the "Initial Funding Date") that is the latest of (i) [**], (ii) [**] after the date on which Apellis shall have notified SFJ of the date on which Apellis will, subject to SFJ's concurrent payment of such funding payment, satisfy Apellis' obligations in Section 7.4 or (iii) the date on which all of Apellis' obligations in Section 7.4 are satisfied. Funding payment #2 set forth in the table above shall be payable on or before the date for such payment set forth in Exhibit M.

For avoidance of doubt, if any of the amounts set forth in the table above is not paid as scheduled for the reason set forth in Section 4.1.2, SFJ shall pay such amount to Apellis within [**] after Apellis notifies SFJ in writing that Apellis has met the condition for funding set forth in such provision."

2.3 The paragraph in Section 6.1 of the Agreement preceding the tables described below in Section 2.4 of this Amendment is hereby amended and restated in its entirety as set forth below:

"6.1 Regulatory Approval Following Completion of the Trial. Following Regulatory Approval by: (i) the FDA, Apellis will pay to SFJ the sum of the initial payments in the amounts set forth in the two tables below to be made within [**] after the date of the first Regulatory Approval by the FDA based upon the date of such Regulatory Approval as shown on the tables below (the "Initial US Payment") and annual payments equal to the sum of the amounts set forth in the two tables below on or before each applicable anniversary of the date of the applicable Regulatory Approval (the "US Approval Payments") (in millions of US Dollars); and/or (ii) the EMA, Apellis will pay to SFJ the

sum of the initial payments in the amounts set forth in the two tables below to be made within [**] after the date of the first Regulatory Approval by the EMA based upon the date of such Regulatory Approval as shown in the tables below (the "Initial EU Payment") and annual payments equal to the sum of the amounts set forth in the two tables below on or before each applicable anniversary of the date of the applicable Regulatory Approval (the "EU Approval Payments") (in millions of US Dollars). The Initial US Payment, Initial EU Payment, US Approval Payments and EU Approval Payments are collectively referred to as the "Approval Payments," and shall be subject to adjustment as provided in Section 6.2."

2.4 A second table is hereby inserted in Section 6.1 of the Agreement immediately below the table set forth therein, which second table shall read as follows:

"Additional Approval Payment amounts payable based on SFJ's payment to Apellis of funding payment #2 set forth in Section 4.2 (i.e., the amounts in the following table shall be added to the Approval Payment amounts in the table immediately above if such Approval Payments become payable based on applicable Regulatory Approvals as set forth above):

							f		
f									
-									
-									
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							f		
-									
-									
f									

”

2.5 Section 6.2 of the Agreement is hereby amended and restated in its entirety as set forth below:

“6.2 Payment Adjustments. In the event that the actual funding paid to Apellis by SFJ hereunder, including any additional amounts paid by SFJ pursuant to Section 4.3 but excluding the amount of funding payment #2 set forth in the table in Section 4.2, is lower or greater than One Hundred Twenty Million U.S. Dollars ($120,000,000.00), the Approval Payments in the first table in Section 6.1 will be multiplied by a fraction, the numerator of which is equal to such actual funding paid to Apellis by SFJ hereunder and the denominator of which is equal to One Hundred Twenty Million U.S. Dollars ($120,000,000.00). In the event that SFJ pays to Apellis the Additional SFJ Funding in accordance with Section 4.3, for purposes of the foregoing adjustment, [**] U.S. Dollars ($[**]) of such Additional SFJ Funding shall be allocated to the calculation of the US Approval Payments in the first table in Section 6.1 and [**] U.S. Dollars ($[**]) of such Additional SFJ Funding shall be allocated to the calculation of the EU Approval Payments in the first table in Section 6.1 (and, for the avoidance of doubt, such amounts shall not be allocated to the calculation of any of the amounts in the second table in Section 6.1). If Apellis obtains Regulatory Approval based on data from the PRINCE Trial after a termination of this Agreement pursuant to Section 14.2.3, then, for purposes of Section 14.3.3, the Approval Payment schedules set forth above in Section 6.1 shall be replaced in their entireties with a royalty (the “PRINCE-Only Royalty”) equal to [**], which royalty shall be payable until the earlier of such time as the cumulative royalty amounts paid by Apellis to SFJ reach four hundred sixty million dollars ($460,000,000) or such time as Apellis and its Affiliates, licensees, sublicensees and transferees have permanently discontinued all Commercialization of systemic formulations of the Product. For purposes of the foregoing royalty formula, [**].”

2.6 Section 14.3.1.1 of the Agreement is hereby amended by replacing the phrase “three hundred eight million dollars ($308,000,000)” therein with the phrase “three hundred sixty-five million dollars ($365,000,000)”.

2.7 Section 14.3.4.2 of the Agreement is hereby amended by replacing the phrase "$308,000,000" therein with the phrase "three hundred sixty-five million dollars ($365,000,000)".

2.8 Exhibit M of the Agreement is hereby deleted and replaced in its entirety with Exhibit M attached to this Amendment.

PART 3

GENERAL

3.1 As amended by this Amendment, the Agreement remains in full force and effect in accordance with its terms.

IN WITNESS WHEREOF, the Parties, intending to be legally bound hereby, have caused this Amendment to be executed in duplicate by their duly authorized representatives as of the Amendment Date.

APELLIS PHARMACEUTICALS, INC.

By:/s/ Cedric Francois
Name: Cedric Francois
Title: CEO

Date: 6/7/2019

IN WITNESS WHEREOF, the Parties, intending to be legally bound hereby, have caused this Amendment to be executed in duplicate by their duly authorized representatives as of the Amendment Date.

SFJ PHARMACEUTICALS XI, L.P.

By: SFJ Pharmaceuticals General Partner XI, L.P.,

Delaware limited partnership
Its: General Partner

By: SFJ Pharmaceuticals GP Corp. XI,

Delaware corporation
Its: General Partner

By: /s/ Robert DeBenedetto
Name: Robert DeBenedetto
Title: President and Chief Executive Officer

Date: June 7, 2019

Exhibit 10.2

SECOND AMENDMENT TO LEASE

This SECOND AMENDMENT TO LEASE (this **"Amendment"**) is entered into this 5th day of June, 2019 (the **"Effective Date"**) by and between NWALP PHOP Property Owner LLC, a Delaware limited liability company (the **"Landlord"**), and Apellis Pharmaceuticals, Inc., a Delaware corporation (the **"Tenant"**).

W I T NE S S E T H:

WHEREAS, the Landlord and the Tenant entered into that certain Lease dated as of April 27, 2017 (the **"Original Lease**), regarding premises consisting of approximately 6,126 rentable square feet (the **"Original Premises"**) and situated in that certain building located at 200 Fifth Avenue, Waltham, Massachusetts;

WHEREAS, the Landlord and the Tenant entered into that certain First Amendment to Lease dated July 25, 2018 (the **"First Amendment"**) pursuant to which the Landlord and the Tenant amended the Original Lease so as to relocate the Tenant from the Original Premises to certain space in the Building located at 100 Fifth Avenue, Waltham, Massachusetts on the third (3rd) floor thereof (the **"New Premises"**)(the Original Lease as amended by the First Amendment and this Amendment is referred to herein as the **"Lease"**);

WHEREAS, the Tenant desires to expand the Premises so as to rent the space located on the sixth (6th) floor of the Building, as described in ***Exhibit A-2*** attached to this Amendment (the **"Expansion Premises"**) and consisting of 8,821 rentable square feet of space and, upon the Expansion Premises Term Commencement Date (as hereinafter defined):

(i) Tenant shall continue to lease the New Premises pursuant to the terms of the Lease and shall also lease the Expansion Premises during the duration of the Expansion Premises Term, as defined herein;

(ii) The Lease shall remain in full force and effect with respect to the New Premises;

(iii) Except where otherwise stated in this Amendment, the terms of the Lease shall apply to the Expansion Premises, as may be applicable;

(iv) Basic Rent for the Expansion Premises shall be as set forth in this Amendment; and

(v) Certain other modifications to the terms and provisions of the Lease shall become effective as set forth in this Amendment.

WHEREAS, the Landlord and the Tenant mutually desire to amend the Lease as provided for below.

NOW, THEREFORE, in consideration of the mutual covenants contained in this Amendment, the Lease and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Landlord and the Tenant hereby agree as follows effective as of the Effective Date:

Exhibit 10.2

1. **Rent.**

(a) As of the Expansion Premises Term Commencement Date, the Basic Rent Table set forth in the Definition of "Basic Rent" is supplemented with the following:

"Expansion Premises Term Supplemental Basic Rent Table:

Months 1-12	$27,933.17/month	$335,198.00/year

Each "Month" set forth above is a full calendar month occurring after the Expansion Premises Term Commencement Date. If the Expansion Premises Term Commencement Date occurs on a date which is not the first day of a calendar month, rent for the month in which the Expansion Premises Term Commencement Date occurs shall be pro-rated for such month based upon the rental rate for Month 1. The following calendar month shall constitute Month 1 and the Term shall include the partial month in which the Expansion Premises Term Commencement Date occurred."

(b) As of the Expansion Premises Term Commencement Date, the following shall be added to Section 3.1 of the Lease:

"(c) The Tenant shall pay to the Landlord, as part of the Basic Rent, the rent as set forth in the Expansion Premises Term Supplemental Basic Rent Table during the duration of the Expansion Premises Term."

2. **Premises.** As of the Expansion Premises Term Commencement Date, **Exhibit A- 2 – Plan of the Expansion Premises,** as attached to this Amendment, shall be attached to the Lease.

In addition, as of the Expansion Premises Term Commencement Date, the following definitions set forth in Section 1.1 of the Lease are deleted in their entirety and replaced with the following:

a. **Premises:** The Initial Premises and, for the duration of the Expansion Premises Term, the Expansion Premises.

b. **Premises Rentable Area:** Agreed to be (i) 22,600 rentable square feet prior to and following the expiration of the Expansion Premises Term and (ii) 31,421 rentable square feet for the duration of the Expansion Premises Term.

c. **Tenant's Proportionate Share:** agreed to be (i) fourteen and forty one hundredths percent (14.41%) prior to and following the expiration of the Expansion Premises Term and (ii) twenty percent (20%) during the duration of the Expansion Premises Term (which is based on the ratio of the agreed upon (a) Premises Rentable Area to (b) Building Rentable Area).

3. **Definitions.** In addition, the following definitions shall be added to Section 1.1 of the Lease:

(a) **Expansion Premises Term Commencement Date:** The effective date of this Amendment.

(b) **Expansion Premises Term Expiration Date:** The last day of the twelfth (12th) full calendar month following the Expansion Premises Term Commencement Date.

(c) **Expansion Premises Term:** The period of time commencing on the Expansion Premises Term Commencement Date and expiring at 11:59 p.m. on the Expansion Premises Expiration Date.

4. **Condition of Expansion Premises.** The Expansion Premises are being leased by Tenant in their condition as of the delivery date, "As Is," without representation or warranty by Landlord ..

5. **Yield-Up and Surrender of Expansion Premises.** Tenant shall yield-up and surrender the Expansion Premises on or prior to the Expansion Premises Term Expiration Date in strict accordance with Article 16 of the Lease. Failure to yield up and surrender the Expansion Premises in accordance with this Section 6 shall constitute a Default of Tenant under the Lease and entitle Landlord to exercise any and all of the remedies to which Landlord is entitled under the Lease, at law or in equity.

6. **Brokers.** Each of Landlord and Tenant hereby represents that such party has not dealt with any brokers with respect to the transactions contemplated by this other than T3 Advisors (the **"Broker"**). Each of Landlord and Tenant hereby agrees to defend, indemnify and hold harmless the other, and its successors and assigns, against and from all claims, losses, liabilities and expenses including, without limitation, reasonable attorney's fees, arising out of any claim by any broker, consultant, finder or like agent, which are based upon alleged dealings by such party with respect to this Amendment other than the Broker. Provided that this Amendment is executed by the Landlord and the Tenant, the Landlord shall pay to the Broker a commission fee per a separate agreement.

7. **Capitalized Terms.** Capitalized terms that are not otherwise defined herein shall have the meaning set forth in the Lease.

8. **Ratification of Existing Lease Terms.** Other than as expressly set forth herein, the terms and provisions of the Lease are hereby ratified, confirmed and shall remain unmodified and in full force and effect.

9. **Governing Law.** This Amendment shall be governed by the laws of the Commonwealth of Massachusetts without regard to its conflict of law provisions.

10. **Counterpart Signatures.** This Amendment may be executed in counterparts, each of which shall constitute an original document and all of which, together, shall constitute one and the same instrument.

[Signatures Appear on the Following Page]

Exhibit 10.2

IN WITNESS WHEREOF, the Landlord and the Tenant have each caused this Amendment to be executed as of the date first above written.

LANDLORD:
NWALP PHOP PROPERTY OWNER LLC, a Delaware limited liability company

By: ALP PHOP Manager, LLC, a Massachusetts limited liability company, its appointed representative

By: /s/ Andrew Maher
Name: ANDREW MAHER
Title: Manager

TENANT:

APELLIS PHARMACEUTICALS, INC., a Delaware corporation

By: /s/ Pascal Deschatelets
Name: PASCAL DESCHATELETS
Title: COO

6/4/2019

Exhibit 10.2

Exhibit A-2

The Expansion Premises

SIXTH FLOOR EXSISTING
8,821 SF

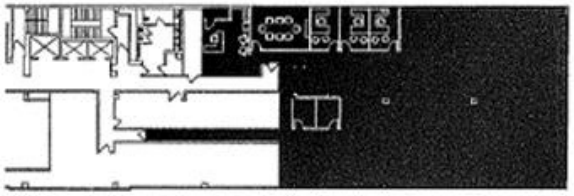

Exhibit 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER PURSUANT TO EXCHANGE ACT RULES13a-14(a) AND 15d-14(a), AS ADOPTED PURSUANT TO SECTION 302 OF SARBANES-OXLEY ACT OF 2002

I, Cedric Francois, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Apellis Pharmaceuticals, Inc.;

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

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

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

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

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

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

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

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

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

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

Date: July 31, 2019

By: /s/ Cedric Francois
Cedric Francois
Chief Executive Officer

Exhibit 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER PURSUANT TO EXCHANGE ACT RULES 13A-14(A) AND 15D-14(A), AS ADOPTED PURSUANT TO SECTION 302 OF SARBANES-OXLEY ACT OF 2002

I, Timothy Sullivan, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Apellis Pharmaceuticals, 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

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

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

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

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

Date: July 31, 2019

By: /s/ Timothy Sullivan
Timothy Sullivan
Chief Financial Officer and Treasurer

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 of Apellis Pharmaceuticals, Inc. (the "Company") on Form 10-Q for the period ending June 30, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Cedric Francois, President and Chief Executive Officer of the Company, hereby certifies, pursuant to 18 U.S.C. Section 1350, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: July 31, 2019

By: /s/ Cedric Francois
Cedric Francois
President and Chief Executive Officer

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

Exhibit 32.2

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

In connection with the Quarterly Report of Apellis Pharmaceuticals, Inc. (the "Company") on Form 10-Q for the period ending June 30, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), the undersigned, Timothy Sullivan, Chief Financial Officer and Treasurer of the Company, hereby certifies, pursuant to 18 U.S.C. Section 1350, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: July 31, 2019

By: /s/ Timothy Sullivan
Timothy Sullivan
Chief Financial Officer and Treasurer

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.