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, 2018

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 001-38137

Akcea Therapeutics, Inc.

(Exact name of Registrant as specified in its charter)

Delaware	**47-2608175**
(State or other jurisdiction of incorporation or organization)	(IRS Employer Identification No.)

55 Cambridge Parkway, Suite 100, Cambridge, MA 02142
(Address of principal executive offices, including zip code)

617-207-0202
(Registrant's telephone number, including area code)

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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted 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 and post 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 ☒ (Do not check if a smaller reporting company)	Smaller reporting company ☐
	Emerging growth company ☒

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12(b)-2 of the Securities Exchange Act of 1934). Yes ☐ No ☒

The number of shares of common stock outstanding as of July 31, 2018 was 85,718,372.

AKCEA THERAPEUTICS, INC.
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TRADEMARKS

"Akcea," the Akcea logo, and other trademarks or service marks of Akcea Therapeutics, Inc. appearing in this report are the property of Akcea Therapeutics, Inc. This report contains additional trade names, trademarks and service marks of others, which are the property of their respective owners. Solely for convenience, trademarks and trade names referred to in this report may appear without the ® or TM symbols.

AKCEA THERAPEUTICS, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share data)
(Unaudited)

	June 30, 2018	December 31, 2017 (as revised)
ASSETS		
Current assets:		
Cash and cash equivalents	$ 216,840	$ 58,367
Short-term investments	165,011	201,763
Contract receivable	3,295	5,413
Other current assets	3,575	1,302
Total current assets	388,721	266,845
Property, plant and equipment, net	1,523	77
Licenses, net	1,714	1,221
Deposits and other assets	3,047	661
Total assets	$ 395,005	$ 268,804
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 2,706	$ 2,381
Payable to Ionis Pharmaceuticals, Inc.	27,137	14,365
Accrued compensation	4,548	4,083
Accrued liabilities	25,969	7,570
Current portion of deferred revenue	35,713	58,192
Other current liabilities	1,138	1,875
Total current liabilities	97,211	88,466
Long-term portion of deferred rent	1,551	12
Long-term portion of deferred revenue	5,839	12,501
Total liabilities	104,601	100,979
Stockholders' equity:		
Common stock, $0.001 par value; 125,000,000 and 100,000,000 shares authorized at June 30, 2018 and December 31, 2017, respectively; 85,680,719 and 66,541,629 shares issued and outstanding at June 30, 2018 and December 31, 2017, respectively	86	67
Additional paid-in capital	678,509	464,430
Accumulated other comprehensive loss	(297)	(451)
Accumulated deficit	(387,894)	(296,221)
Total stockholders' equity	290,404	167,825
Total liabilities and stockholders' equity	$ 395,005	$ 268,804

See accompanying notes.

AKCEA THERAPEUTICS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except for share and per share data)
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017 (as revised)	2018	2017 (as revised)
Revenue:				
Research and development revenue under collaborative agreement	$ 18,321	$ 5,713	$ 35,429	$ 11,807
Total revenue	18,321	5,713	35,429	11,807
Expenses:				
Research and development	39,457	18,487	67,427	83,282
General and administrative	42,287	6,915	61,752	11,590
Total operating expenses	81,744	25,402	129,179	94,872
Loss from operations	(63,423)	(19,689)	(93,750)	(83,065)
Other income (expense):				
Investment income	1,546	245	2,414	308
Interest expense	—	(965)	—	(1,507)
Other income (expense)	45	50	(123)	50
Loss before income tax expense	(61,832)	(20,359)	(91,459)	(84,214)
Income tax expense	(214)	—	(214)	—
Net loss	$ (62,046)	$ (20,359)	$ (91,673)	$ (84,214)
Net loss per share of preferred stock, basic and diluted	$ —	$ (0.70)	$ —	$ (2.92)
Weighted-average shares of preferred stock outstanding, basic and diluted	—	28,884,540	—	28,884,540
Net loss per share of common stock owned by Ionis, basic and diluted	(0.72)	—	(1.19)	—
Weighted-average shares of common stock outstanding owned by Ionis, basic and diluted	60,832,494	—	53,182,685	—
Net loss per share of common stock owned by others, basic and diluted	$ (0.85)	$ —	$ (1.33)	$ —
Weighted-average shares of common stock outstanding owned by others, basic and diluted	21,492,157	—	21,332,650	—

See accompanying notes.

AKCEA THERAPEUTICS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands)
(Unaudited)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
		(as revised)		(as revised)
Net loss	$ (62,046)	$ (20,359)	$ (91,673)	$ (84,214)
Unrealized gains (losses) on investments, net of tax	151	1	106	(27)
Currency translation adjustment	20	(42)	48	(36)
Comprehensive loss	$ (61,875)	$ (20,400)	$ (91,519)	$ (84,277)

See accompanying notes.

AKCEA THERAPEUTICS, INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)
(Unaudited)

	Six Months Ended June 30,	
	2018	**2017 (as revised)**
Operating activities:		
Net loss	$ (91,673)	$ (84,214)
Adjustments to reconcile net loss to net cash (used in) provided by operating activities:		
Depreciation	54	56
Amortization of licenses	70	60
Amortization of premium on investments, net	208	139
Non-cash sublicensing expense	—	33,394
Non-cash interest expense for line of credit with Ionis Pharmaceuticals, Inc.	—	1,507
Stock-based compensation expense	18,509	7,122
Changes in operating assets and liabilities:		
Contracts receivable	2,118	—
Other current and long-term assets	(2,275)	(1,226)
Accounts payable	325	(799)
Payable to Ionis Pharmaceuticals, Inc.	12,772	(13,111)
Accrued compensation	465	(1,253)
Deferred rent	518	4
Accrued liabilities	17,458	1,136
Income taxes payable	(720)	—
Deferred revenue	(29,141)	63,193
Net cash (used in) provided by operating activities	(71,312)	6,008
Investing activities:		
Purchases of short-term investments	(22,197)	(61,209)
Proceeds from sale of short-term investments	94,736	17,820
Purchase of property, plant and equipment	(5)	—
Net cash provided by (used in) investing activities	72,534	(43,389)
Financing activities:		
Proceeds from exercise of common stock options and employee stock purchase plan issuances	3,281	—
Proceeds from line of credit from Ionis Pharmaceuticals, Inc.	—	106,000
Proceeds from issuance of common stock to Ionis in TTR transaction	156,306	—
Offering costs paid	—	(1,031)
Net cash provided by financing activities	159,587	104,969
Effect of exchange rates on cash	48	—
Net increase in cash and cash equivalents	160,857	67,588
Cash, cash equivalents and restricted cash at beginning of period	58,367	7,857
Cash, cash equivalents and restricted cash at end of period	$ 219,224	$ 75,445
Supplemental disclosures of non-cash investing and financing activities:		
Purchase of property, plant and equipment included in accrued liability	$ 491	$ —
Purchase of property, plant and equipment included in long-term deferred rent liability	$ 1,004	$ —
Acquisition of research and development licenses	$ 563	$ —
Unpaid deferred offering costs	$ 450	$ 473

The following table presents the line items and amounts of cash, cash equivalents and restricted cash reported within the condensed consolidated balance sheets:

	June 30,	
	2018	**2017**
Cash and cash equivalents	$ 216,840	$ 75,445
Restricted cash included in deposits and other assets	2,384	—
Total cash, cash equivalents and restricted cash	$ 219,224	$ 75,445

See accompanying notes.

1. Basis of Presentation and Organization

The accompanying condensed consolidated financial statements are unaudited and have been prepared in conformity with accounting principles generally accepted in the United States of America, or U.S. GAAP. Certain amounts in the prior period financial statements have been revised to conform to the presentation of the current period financial statements. See Note 2, *Summary of Significant Accounting Policies*, for a discussion of these revisions to prior period financial statements made in connection with our adoption of the new revenue recognition guidance retroactive to January 1, 2017.

The condensed consolidated financial statements include the accounts of Akcea Therapeutics, Inc. ("we," "our," and "us") and our wholly owned subsidiaries. All intercompany transactions and balances were eliminated in consolidation. We included all normal recurring adjustments in the financial statements which we considered necessary for a fair presentation of our financial position and our operating results and cash flows for the interim periods ended June 30, 2018 and 2017. Results for the interim periods are not necessarily indicative of the results for the entire year. For more complete financial information, these financial statements, and notes thereto, should be read in conjunction with the audited financial statements included on the Annual Report on Form 10-K for the fiscal year ended December 31, 2017.

We were incorporated in Delaware in December 2014. We were organized by Ionis Pharmaceuticals, Inc., or Ionis, to focus on developing and commercializing drugs to treat patients with rare and serious diseases. On July 19, 2017, we completed our initial public offering, or IPO. As of June 30, 2018, Ionis owned approximately 75% of our common stock and is our majority shareholder. Prior to our IPO, we were wholly owned by Ionis.

In accordance with Accounting Standard Codification, or ASC, 205-40, *Going Concern*, we evaluated whether there are conditions and events, considered in the aggregate, that raise substantial doubt about our ability to continue as a going concern within one year after the date that the condensed consolidated financial statements are issued. As of June 30, 2018, we had an accumulated deficit of $387.9 million. During the three and six months ended June 30, 2018, we incurred a loss of $62.0 million and $91.7 million, respectively, and during the six months ended June 30, 2018, we used $71.3 million of cash in operations. We expect to continue to generate operating losses and negative operating cash flows for the foreseeable future. As we continue to incur losses, the transition to profitability is dependent upon the successful development, approval, and commercialization of our products and product candidates and the achievement of a level of revenues adequate to support our cost structure. We believe that our currently available funds of $381.9 million as of June 30, 2018, in addition to cash generated from sales of our products will be sufficient to fund the our operations through at least the next 12 months from the issuance of this Quarterly Report on Form 10-Q. Management's belief with respect to its ability to fund operations is based on estimates that are subject to risks and uncertainties. If actual results are different from management's estimates, we may need to seek additional funding or delay, limit, reduce or terminate our product development or future commercialization efforts or grant rights to develop and commercialize our drugs even if we would otherwise prefer to develop and commercialize the drugs ourselves.

2. Summary of Significant Accounting Policies

The accounting policies followed in the preparation of the interim condensed consolidated financial statements are consistent in all material respects with those presented in Note 1 to our financial statements included on the Annual Report on Form 10-K for the year ended December 31, 2017 except as noted below with respect to our revenue recognition accounting policy.

Use of Estimates

The preparation of condensed consolidated financial statements in conformity with U.S. GAAP requires our management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. Actual results could differ from those estimates.

Translation of Foreign Currency

For our foreign subsidiaries that report in a functional currency other than U.S. dollars, we translate their assets and liabilities into U.S. dollars using the exchange rate at the balance sheet date. We translate revenue and expenses at the monthly average exchange rates for the period. We translate transactions in our capital accounts at the historic exchange rate in effect at the date of the transaction. We include foreign currency translation adjustments as a component of accumulated other comprehensive loss within the condensed consolidated statements of comprehensive loss.

Revenue Recognition

In May 2014, the Financial Accounting Standards Board, or FASB, issued Accounting Standards Update, or ASU, No. 2014-09, which amends the guidance for accounting for revenue from contracts with customers. This ASU supersedes the revenue recognition requirements in ASC Topic 605, *Revenue Recognition*, or Topic 605, and creates a new Topic 606, *Revenue from Contracts with Customers*, or Topic 606. Under Topic 606, an entity recognizes revenue when its customer obtains control of promised goods or services, in an amount that reflects the consideration which the entity expects to receive in exchange for those goods or services.

To determine revenue recognition for arrangements that an entity determines are within the scope of Topic 606, the entity performs the following five steps: (i) identifies the contract(s) with a customer; (ii) identifies the performance obligations in the contract; (iii) determines the transaction price; (iv) allocates the transaction price to the performance obligations in the contract; and (v) recognizes revenue when (or as) the entity satisfies a performance obligation. At contract inception, once the contract is determined to be within the scope of Topic 606, we assess the goods or services promised within each contract and determine those that are performance obligations, and assess whether each promised good or service is distinct. When we offer options for additional goods or services, such as an option to license a drug in the future or for additional goods or services to be provided in the future, we evaluate whether options are material rights that should be treated as additional performance obligations. We typically have not concluded that the option to license a drug or the options for additional goods or services that may be requested in the future under our collaboration agreement are material rights as the amounts attributable to such options represent standalone selling price, and therefore no consideration is allocated to these items at the inception of an agreement. When a partner exercises its option to license a drug or requests the additional goods or services, a new performance obligation is created for that item. Once performance obligations are identified, we then recognize as revenue the amount of the transaction price that we allocated to the respective performance obligation when (or as) each performance obligation is satisfied at a point in time or over time. If the performance obligation is satisfied over time, we recognize revenue based on the use of an output or input method. Through June 30, 2018, we have one revenue stream from our strategic collaboration, option and license agreement, or collaboration agreement, with Novartis Pharma AG, or Novartis, which we entered into in January 2017. For a complete discussion of the accounting for our collaboration revenue, see Note 4, *Strategic Collaboration with Novartis*.

Effective January 1, 2018, we adopted Topic 606 using the full retrospective transition method. Under this method, we revised our consolidated financial statements for prior period amounts including the interim periods included in this Report on Form 10-Q, as if Topic 606 had been effective for such periods. The references "as revised" used herein refer to revisions of amounts originally reported for the three and six months ended June 30, 2017 and the year ended December 31, 2017 as a result of our adoption of Topic 606.

Impact of Adoption

As a result of adopting Topic 606 on January 1, 2018, we have revised our comparative financial statements for the prior year as if Topic 606 had been effective for that period. Under Topic 605, we recognized revenue over time. Under Topic 606, we recognize revenue using the input method based on total costs of performing services over time. As a result, the following financial statement line items for fiscal year 2017 were affected.

Condensed Consolidated Balance Sheets

	December 31, 2017 (in thousands)		
	As Revised Under Topic 606	As Originally Reported Under Topic 605	Effect of Change
Current portion of deferred revenue	$ 58,192	$ 50,579	$ 7,613
Long-term portion of deferred revenue	12,501	8,306	4,195
Accumulated deficit	$ (296,221)	$ (284,413)	$ (11,808)

Condensed Consolidated Statements of Operations and Comprehensive Loss

	Three Months Ended June 30, 2017 (in thousands, except per share data)		
	As Revised Under Topic 606	As Originally Reported Under Topic 605	Effect of Change
Research and development revenue under collaborative agreement	$ 5,713	$ 14,128	$ (8,415)
Loss from operations	(19,689)	(11,274)	(8,415)
Net loss	(20,359)	(11,944)	(8,415)
Net loss per share of preferred stock, basic and diluted	$ (0.70)	$ (0.41)	$ (0.29)

	Six Months Ended June 30, 2017 (in thousands, except per share data)		
	As Revised Under Topic 606	As Originally Reported Under Topic 605	Effect of Change
Research and development revenue under collaborative agreement	$ 11,807	$ 23,725	$ (11,918)
Loss from operations	(83,065)	(71,147)	(11,918)
Net loss	(84,214)	(72,296)	(11,918)
Net loss per share of preferred stock, basic and diluted	$ (2.92)	$ (2.50)	$ (0.42)

Condensed Consolidated Statement of Cash Flows

	Six Months Ended June 30, 2017 (in thousands)		
	As Revised Under Topic 606	As Originally Reported Under Topic 605	Effect of Change
Net loss	$ (84,214)	$ (72,296)	$ (11,918)
Adjustments to reconcile net loss to net cash provided by operating activities:			
Deferred revenue	63,193	51,275	11,918
Cash, cash equivalents and restricted cash at beginning of period	7,857	7,857	—
Cash, cash equivalents and restricted cash at end of period	$ 75,445	$ 75,445	$ —

New Accounting Pronouncements - Recently Issued

In February 2016, the FASB issued amended accounting guidance related to lease accounting, which requires us to record all leases with a term longer than one year on our balance sheet. When we record leases on our balance sheet under the new guidance, we will record a liability with a value equal to the present value of payments we will make over the life of the lease and an asset representing the underlying leased asset. The new accounting guidance requires us to determine if any lease we have is an operating or financing lease, similar to current accounting guidance. We will record expense for an operating type lease on a straight-line basis as an operating expense and we will record expense for a financing type lease as interest expense. The new lease standard is effective for annual and interim periods beginning after December 15, 2018, with early adoption permitted. This standard allows for a modified retrospective application and is effective as of the first quarter of 2019. Entities are allowed to apply the modified retrospective approach (1) retrospectively to each prior reporting period presented in the financial statements with the cumulative effect adjustment recognized at the beginning of the earliest comparative period presented or (2) retrospectively at the beginning of the period of adoption (January 1, 2019) through a cumulative-effect adjustment. We are currently assessing the impact that adoption of this guidance will have on our consolidated financial statements and disclosures.

In June 2016, the FASB issued guidance that changes the measurement of credit losses for most financial assets and certain other instruments. If we have credit losses, this updated guidance requires us to record allowances for these instruments under a new expected credit loss model. This model requires us to estimate the expected credit loss of an instrument over its lifetime, which represents the portion of the amortized cost basis that we do not expect to collect. This change will result in us remeasuring our allowance in each reporting period we have credit losses. The new standard is effective for annual and interim periods beginning after December 15, 2019. Early adoption is permitted for periods beginning after December 15, 2018. When we adopt the new standard, we will make any adjustments to beginning balances through a cumulative-effect adjustment to accumulated deficit on that date. We are currently assessing the timing of adoption as well as the impact it will have on our consolidated financial statements and disclosures.

In February 2018, the FASB issued updated guidance for reclassification of tax effects from accumulated other comprehensive income (loss). The updated guidance gives entities an option to reclassify the stranded tax effects resulting from changes due to the Tax Act from accumulated other comprehensive income (loss) to retained earnings. The updated guidance is effective for all entities for fiscal years beginning after December 31, 2018, and interim periods within those fiscal years. Early adoption is permitted, and adoption is optional. We are currently assessing the impact this updated guidance could have on our consolidated financial statements and the timing of potential adoption.

In June 2018, the FASB issued updated guidance to simplify the accounting for stock-based compensation expense for non-employees. We adopted this guidance in the second quarter of 2018. We have not granted stock option grants to non-employees as of June 30, 2018 and therefore this new guidance has no impact to our financial statements.

3. Investments and Fair Value Measurements

Investments

The following is a summary of our investments at June 30, 2018 and December 31, 2017 (in thousands):

June 30, 2018	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Available-for-sale securities:				
Corporate debt securities	$ 82,414	$ —	$ (127)	$ 82,287
Debt securities issued by U.S. government agencies	81,893	3	(98)	81,798
Total securities with a maturity of one year or less	164,307	3	(225)	164,085
Corporate debt securities	935	—	(9)	926
Debt securities issued by U.S. government agencies	—	—	—	—
Total securities with a maturity of one to two years	935	—	(9)	926
Total available-for-sale securities	$ 165,242	$ 3	$ (234)	$ 165,011

December 31, 2017	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Available-for-sale securities:				
Corporate debt securities	$ 132,434	$ —	$ (206)	$ 132,228
Debt securities issued by U.S. government agencies	38,135	—	(59)	38,076
Total securities with a maturity of one year or less	170,569	—	(265)	170,304
Corporate debt securities	8,267	—	(35)	8,232
Debt securities issued by U.S. government agencies	23,264	—	(37)	23,227

Total securities with a maturity of one to two years	31,531	—	(72)	31,459
Total available-for-sale securities	$ 202,100	$ —	$ (337)	$ 201,763

We recorded unrealized losses related to the securities listed above as of June 30, 2018 and December 31, 2017. We believe that the decline in value of these securities is temporary and primarily related to the change in market interest rates since purchase. We believe it is more likely than not that we will be able to hold our debt securities to maturity. Therefore, we anticipate a full recovery of our debt securities' amortized cost basis at maturity.

All of our available-for-sale securities are available to us for use in our current operations. As a result, we categorized all of these securities as current assets even though the stated maturity of some individual securities may be one year or more beyond the balance sheet date.

Fair Value Measurements

We use a three-tier fair value hierarchy to prioritize the inputs used in our fair value measurements. These tiers include: Level 1, defined as observable inputs such as quoted prices in active markets for identical assets, which includes our money market funds and treasury securities classified as available-for-sale securities; Level 2, defined as inputs other than quoted prices in active markets that are either directly or indirectly observable, which includes our fixed income securities and commercial paper classified as available-for-sale securities; and Level 3, defined as unobservable inputs in which little or no market data exists, therefore requiring us to develop our own assumptions. We have not historically held any Level 3 investments. We recognize transfers between levels of the fair value hierarchy on the date of the event or change in circumstances that caused the transfer.

The following tables present the major security types we held at June 30, 2018 and December 31, 2017 that are regularly measured and carried at fair value. The table segregates each security by the level within the fair value hierarchy of the valuation techniques we utilized to determine the respective securities' fair value (in thousands):

	At June 30, 2018	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)
Money market funds (1)	$ 193,752	$ 193,752	$ —
Corporate debt securities (2)	89,211	—	89,211
Debt securities issued by U.S. government agencies (3)	81,798	—	81,798
Total	$ 364,761	$ 193,752	$ 171,009

	At December 31, 2017	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)
Money market funds (1)	$ 48,430	$ 48,430	$ —
Corporate debt securities (3)	140,460	—	140,460
Debt securities issued by U.S. government agencies (3)	61,303	—	61,303
Total	$ 250,193	$ 48,430	$ 201,763

(1) Included in cash and cash equivalents on our condensed consolidated balance sheets.
(2) At June 30, 2018, $6.0 million was included in cash and cash equivalents on our condensed consolidated balance sheet, with the difference included in short-term investments on our condensed consolidated balance sheet.
(3) Included in short-term investments on our condensed consolidated balance sheets.

We did not have any Level 3 investments at June 30, 2018 and December 31, 2017. During the six months ended June 30, 2018 and the year ended December 31, 2017, there were no transfers between Level 1 and Level 2.

4. Strategic Collaboration with Novartis

In January 2017, we initiated a strategic collaboration with Novartis for the development and commercialization of AKCEA-APO(a)-L$_{Rx}$ and AKCEA-APOCIII-L$_{Rx}$. Under the Novartis collaboration, Novartis has an exclusive option to further develop and commercialize these drugs. We are responsible for completing a Phase 2 program, conducting an end-of-Phase 2 meeting with the FDA and providing initial quantities of the active pharmaceutical ingredient, or API, for each drug. If Novartis exercises an option for one of these drugs, Novartis will be responsible for all further global development, regulatory and co-commercialization activities and costs for such drug.

We received a $75.0 million upfront payment in the first quarter of 2017, of which we retained $60.0 million and we paid Ionis $15.0 million as a sublicense fee under our license agreement with Ionis. If Novartis exercises its option for a drug, Novartis will pay us a license fee equal to $150.0 million for each drug licensed by Novartis. In addition, for AKCEA-APO(a)-L$_{Rx}$, we are eligible to receive up to $600.0 million in milestone payments, including $25.0 million for the achievement of a development milestone, up to $290.0 million for the achievement of regulatory milestones and up to $285.0 million for the achievement of commercialization milestones. In addition, for AKCEA-APOCIII-L$_{Rx}$, we are eligible to receive up to $530.0 million in milestone payments, including $25.0 million for the achievement of a development milestone, up to $240.0 million for the achievement of regulatory milestones and up to $265.0 million for the achievement of commercialization milestones. We will earn the next milestone payment of $25.0 million under this collaboration if Novartis advances the Phase 3 study for either drug. We are also eligible to receive tiered royalties in the mid-teens to low twenty percent range on net sales of AKCEA-APO(a)-L$_{Rx}$ and AKCEA-APOCIII-L$_{Rx}$. Novartis will reduce these royalties upon the expiration of certain patents or if a generic competitor negatively impacts the product in a specific country. We will pay 50% of these license fees, milestone payments and royalties to Ionis as a sublicense fee. We plan to co-commercialize any licensed drug commercialized by Novartis in selected markets, under terms and conditions that we plan to negotiate with Novartis in the future, through the specialized sales force we are building to commercialize TEGSEDI™ (inotersen) and WAYLIVRA™ (volanesorsen).

At commencement of our strategic collaboration, we identified the following four distinct performance obligations:

- Development activities for AKCEA-APO(a)-L$_{Rx}$;
- Development activities for AKCEA-APOCIII-L$_{Rx}$;
- API for AKCEA-APO(a)-L$_{Rx}$; and
- API for AKCEA-APOCIII-L$_{Rx}$.

The development activities and the supply of API are distinct because Novartis or another third party could provide these items without our assistance.

We determined the transaction price for the Novartis collaboration was $108.4 million, comprised of the following:

- $75.0 million from the upfront payment we received;
- $28.4 million for the premium paid by Novartis, which represents the excess of the fair value Ionis received from Novartis' purchase of Ionis' stock at a premium in the first quarter of 2017; and
- $5.0 million for the premium Novartis would have paid to purchase Ionis' stock if we did not complete our IPO within 15 months of the inception of the agreement.

We are recognizing the $75.0 million upfront payment plus the premium paid by Novartis from its purchase of Ionis' stock and the premium associated with Novartis' obligation to purchase Ionis' stock if we did not complete our IPO because we are the party providing the services and API under the collaboration agreement.

None of the development or regulatory milestone payments have been included in the transaction price, as all milestone payments are fully constrained. As part of our evaluation of the constraint, we considered numerous factors, including the fact that achievement of the milestones is outside of our control and contingent upon the success of our clinical trials, Novartis' efforts, and the receipt of regulatory approval. We will re-evaluate the transaction price, including estimated variable consideration included in the transaction price and all constrained amounts, in each reporting period and as uncertain events are resolved or other changes in circumstances occur.

Based on the distinct performance obligations under the Novartis collaboration, we allocated the $108.4 million transaction price based on relative stand-alone selling prices of each of our performance obligations as follows:

- $64.0 million for development services for AKCEA-APO(a)-L_{Rx};
- $40.1 million for development services for AKCEA-APOCIII-L_{Rx};
- $1.5 million for the delivery of AKCEA-APO(a)-L_{Rx} API; and
- $2.8 million for the delivery of AKCEA-APOCIII-L_{Rx} API.

We are recognizing revenue related to each of our performance obligations as follows:

- We will satisfy the development services performance obligation for AKCEA-APO(a)-L_{Rx} as the research and development services are performed. We expect a significant portion of the research and development services to be completed by December 2018 with the remainder by the end of March 2019. We recognize revenue related to research and development services performed using an input method by calculating costs incurred at each period end relative to total costs expected to be incurred;
- We will satisfy the development services performance obligation for AKCEA-APOCIII-L_{Rx} as the research and development services are performed. We expect a significant portion of the research and development services to be completed by June 2019 with the remainder by the end of December 2019. We recognize revenue related to research and development services performed using an input method by calculating costs incurred at each period end relative to total costs expected to be incurred;
- We recognized the amount attributed to the AKCEA-APO(a)-L_{Rx} API supply when we delivered API to Novartis in 2017; and
- We recognized the amount attributed to the AKCEA-APOCIII-L_{Rx} API supply when we delivered API to Novartis in May 2018.

Additionally, we and Ionis entered into a stock purchase agreement, or SPA, with Novartis. Under the SPA, in July 2017, Novartis purchased $50.0 million of our common stock in a separate private placement concurrent with the completion of our IPO at a price per share equal to the IPO price. Our IPO is discussed in Note 9, *Initial Public Offering*.

During the three and six months ended June 30, 2018, we earned revenue of $18.3 million and $35.4 million from our strategic collaboration with Novartis, representing 100% of our revenue. In comparison, we earned revenue of $5.7 million and $11.8 million for the same periods in 2017 (as revised). During the three and six months ended June 30, 2018, we recognized $12.6 million and $32.9 million of revenue from amounts that were in our beginning deferred revenue balance. Our consolidated balance sheet at June 30, 2018 and December 31, 2017 (as revised) included deferred revenue of $41.6 million and $70.7 million, respectively, related to our strategic collaboration with Novartis.

5. License Agreements and Services Agreement with Ionis

In December 2015, we entered into a development, commercialization and license agreement related to our cardiometabolic franchise and a services agreement with Ionis. In March 2018, we entered into a new development, commercialization, collaboration and license agreement related to our TTR franchise and amended the services agreement previously entered into with Ionis. The following sections summarize these related party agreements with Ionis.

Cardiometabolic Development, Commercialization and License Agreement

Our development, commercialization and license agreement, or the license agreement, with Ionis granted exclusive rights to us to develop and commercialize WAYLIVRA, AKCEA-APO(a)-L_{Rx}, AKCEA-APOCIII-L_{Rx}, and AKCEA-ANGPTL3-L_{Rx}, which are collectively referred to as the Lipid Drugs. Ionis has granted us an exclusive license to certain patents to develop and commercialize products containing the Lipid Drugs. Ionis also granted us a non-exclusive license to the Ionis antisense platform technology for us to develop and commercialize products containing the Lipid Drugs. Ionis also granted us non-exclusive rights under its manufacturing technology to manufacture the Lipid Drugs in our own facility or at a contract manufacturer. As a part of this agreement both companies agreed not to work with any other parties to develop or commercialize other RNA-targeting drugs that are designed to inhibit any of the Lipid Drug targets so long as we are developing or commercializing the Lipid Drugs.

We and Ionis share development responsibilities for the Lipid Drugs. We pay Ionis for the research and development expenses it incurs on our behalf, which include both external and internal expenses. External research and development expenses include costs for contract research organizations, or CROs, costs to conduct nonclinical and clinical studies on our drugs, costs to acquire and evaluate clinical study data, such as investigator grants, patient screening fees and laboratory work, and fees paid to consultants. Internal research and development expenses include costs for the work that Ionis' research and development employees perform for us. Ionis charges us a full-time equivalent rate that covers personnel-related expenses, including salaries and benefits, plus an allocation of facility-related expenses, including rent, utilities, insurance and property taxes, for those development employees who work either directly or indirectly on the development of our drugs. We also pay Ionis for the API, and drug product we use in our nonclinical and clinical studies for all of our drugs. Ionis manufactures the API for us and charges us a price per gram consistent with the price Ionis charges its pharmaceutical partners, which includes the cost for direct materials, direct labor and overhead required to manufacture the API. If we need the API filled in vials for our clinical studies and Ionis contracts with a third party to perform this work, Ionis will charge us for the resulting cost.

As we commercialize each of the Lipid Drugs, we will pay Ionis royalties from the mid-teens to the mid-twenty percent range on sales related to the Lipid Drugs that we sell. If we sell a Lipid Drug for a Rare Disease Indication (defined in the agreement as less than 500,000 patients worldwide or an indication that required a Phase 3 program of less than 1,000 patients and less than two years of treatment), we will pay a higher royalty rate to Ionis than if we sell a Lipid Drug for a Broad Disease Patient Population (defined in the agreement as more than 500,000 patients worldwide or an indication that required a Phase 3 program of 1,000 or more patients and two or more years of treatment). Other than with respect to the drugs licensed to Novartis under the collaboration agreement, if our annual sales reach $500.0 million, $1.0 billion and $2.0 billion, we will be obligated to pay Ionis sales milestones in the amount of $50.0 million for each sales milestone reached by each Lipid Drug. If and when triggered, we will pay Ionis each of these sales milestones over the subsequent 12 quarters in equal payments.

We may terminate this agreement if Ionis is in material breach of the agreement. Ionis may terminate this agreement if we are in material breach of the agreement. In each circumstance the party that is in breach will have an opportunity to cure the breach prior to the other party terminating this agreement.

In the first quarter of 2017, we entered into letter agreements with Ionis to reflect the agreed upon payment terms with respect to the upfront option payment that we received from Novartis and to allocate the premium that Novartis paid for Ionis' common stock in connection with our strategic collaboration with Novartis. For additional detail regarding our strategic collaboration with Novartis, see Note 4, *Strategic Collaboration with Novartis.*

TTR Development, Commercialization, Collaboration and License Agreement

On April 17, 2018, our stockholders, other than Ionis and its affiliates, approved the development, commercialization, collaboration and license agreement, or TTR License Agreement, and a stock purchase agreement, or Ionis SPA, with Ionis, our majority shareholder which was entered into on March 14, 2018. In addition, in connection with these agreements, we entered into an amended and restated services agreement, or Amended Services Agreement, and an amended and restated investor rights agreement, or Amended Investor Rights Agreement, with Ionis.

We determined that the License Agreement and Ionis SPA included provisions which required the approval of the agreements by our stockholders, other than Ionis and its affiliates, which we deemed was not perfunctory in nature, therefore, we concluded that the approved date of the agreements for accounting purposes would be April 17, 2018, the date on which such approval was received and the closing of the agreements took place.

In accordance with the terms and provisions of the License Agreement, we received rights to:

- commercialize TEGSEDI following receipt of regulatory approval and perform certain other non-commercial activities with respect to TEGSEDI, in each case, in accordance with a global strategic plan;
- partner on the completion of all pivotal studies, of a follow-on drug to TEGSEDI, AKCEA-TTR-L_{Rx} and perform other non-commercial activities with respect to AKCEA-TTR-L_{Rx};
- commercialize AKCEA-TTR-L_{Rx}, following receipt of regulatory approval in accordance with a global strategic plan;
- share in profits and losses with respect to TEGSEDI and AKCEA-TTR-L_{Rx};
- manufacture (including through a third party) each product following receipt of regulatory approval for such product; and
- sublicense the development and commercialization of either product to third parties or affiliates, with the consent of Ionis.

As consideration for the grant of rights under the TTR License Agreement, we paid an upfront licensing fee of $150.0 million, which was paid through the issuance of 8 million shares of our common stock priced by reference to a recent trading average. In addition, we will be obligated to make milestone payments to Ionis in connection with the achievement of certain development, regulatory and commercialization events. These milestone payments include up to $110.0 million, if all TEGSEDI regulatory approval milestones are met; up to $145.0 million, if all AKCEA-TTR-L_{Rx} regulatory milestones are met; and a total of $1.3 billion, in the form of seven milestones payments, if all sales milestones for the combined products are met. We can elect to pay each milestone payment in cash or shares of our common stock and Ionis may require payment in shares of common stock. Subsequent to the achievement of the milestone event for aggregate worldwide annual net sales of $750 million for the products, all subsequent milestone payments must be paid in cash.

We and Ionis also agreed to share TEGSEDI and AKCEA-TTR-LRx profits and losses as follows: for TEGSEDI, beginning on the earlier of (i) the first day of the quarter after receipt of regulatory approval of TEGSEDI in the United States, or (ii) January 1, 2019, the parties will share profits and losses from the development and commercialization of TEGSEDI (A) on a 60/40 basis (60% to Ionis and 40% to us) through the end of the quarter in which the first commercial sale of AKCEA-TTR-L_{Rx} occurs, and (B) on a 50/50 basis commencing on the first day of the first quarter thereafter; and for AKCEA-TTR-L_{Rx}, beginning January 1, 2018, the parties will share all profits and losses from the development and commercialization of AKCEA-TTR-L_{Rx} on a 50/50 basis.

The License Agreement will remain in effect until the expiration of all included payment obligations, or unless earlier terminated. The License Agreement can be terminated by mutual consent of us and Ionis, by either us or Ionis upon certain events, by either party upon material breach, or by Akcea for convenience upon providing 90 days written notice to Ionis. Upon termination all rights received under the License Agreement will terminate.

To support the commercialization of TEGSEDI and AKCEA-TTR-LRx, Ionis purchased 10.7 million shares of our common stock for $200 million, which when combined with the 8 million shares issued for the upfront license, increased Ionis' ownership percentage to approximately 75%.

In connection with the licensing transaction, we amended our Certificate of Incorporation to increase the authorized shares of common stock from 100,000,000 shares to 125,000,000 shares.

We determined that the upfront accounting for the TTR License Agreement should follow the accounting guidance for common control transactions, given the nature of the relationship between us and Ionis, including the fact that Ionis maintains a controlling ownership position in us.

In addition, we assessed the identifiable assets that were acquired under the terms of the TTR License Agreement, including the licensed rights to inotersen and AKCEA-TTR-LRx, certain commercial-grade inotersen materials, the transfer of a minimal number of employees from Ionis to us and certain manufacturing and clinical research agreements. We concluded that the licensed rights represented a group of similar identifiable assets and that substantially all of the fair value of the acquisition resides in the licensed rights. As such, we concluded that the acquired assets did not meet the definition of a business and that we should account for the TTR License Agreement as an asset acquisition under common control guidance. As a result, we recorded the carrying value of the licensed rights held by Ionis of $0.6 million as an intangible asset at the date of acquisition.

In connection with the transaction, we also acquired $4.7 million of commercial inotersen inventory held by Ionis, which will be paid in cash, prospectively we will be responsible for the procurement of all additional commercial inventory. The inventory did not have a carrying value on the books of Ionis at the time of the acquisition. As such, in accordance with the accounting guidance for common control transactions above, we recorded the amount to be paid for the inotersen inventory as a reduction of additional paid in capital. This amount represented a cash distribution to Ionis, therefore, we have included this distribution as a distribution to Ionis for purposes of loss per share and we have applied the two–class method as discussed in Note 8, *Basic and Diluted Net Loss Per Share*.

We also determined that the TTR License Agreement represented a collaboration arrangement as defined by ASC 808. Prior to April 1, 2018, Ionis was responsible for all costs associated with inotersen and for the period from April 1, 2018 to June 30, 2018, we were responsible for all costs associated with inotersen. We and Ionis share all costs associated with AKCEA-TTR-L$_{Rx}$ from January 1, 2018 forward on a 50/50 basis. We have recorded $3.1 million payable to Ionis which relates to the period prior to the closing of the TTR license agreement to equity, as these amounts have been previously expensed in the financial statements of Ionis. This amount also represents a cash distribution to Ionis and has been included as an adjustment to the net loss attributable to Ionis for purposes of applying the two-class method for loss per share as discussed in Note 8, *Basic and Diluted Net Loss Per Share*. Any amounts paid to or received from Ionis subsequent to the closing of the TTR License Agreement will be recorded to expense based on the underlying nature of the activities.

During the three and six months ended June 30, 2018, we recorded $11.9 million as a component of research and development expense related to the TTR License Agreement.

Services Agreement

We originally entered into a services agreement with Ionis in December 2015 in conjunction with the license agreement related to our cardiometabolic franchise. We entered into the Amended Services Agreement with Ionis in April 2018 in conjunction with the license agreement related to our TTR franchise (collectively, the service agreements). The primary purpose of the Amended Services Agreement was to allow for the expansion of general and administrative services provided to us by Ionis to cover the TEGSEDI and AKCEA-TTR-L$_{Rx}$ products, under terms substantially similar to the prior services agreement.

Our services agreement with Ionis is designed to be flexible to adjust for our increasing capabilities in various functions. Under the services agreement, Ionis provides us certain services, including, without limitation, general and administrative support services and development support services. Ionis allocated a certain percentage of personnel to perform the services that it provides to us based on its good faith estimate of the required services. We pay Ionis for these allocated costs, which reflect the Ionis full-time equivalent, or FTE, rate for the applicable personnel, plus out-of-pocket expenses such as occupancy costs associated with the FTEs allocated to providing us these services. We do not pay a mark-up or profit on the external or internal expenses Ionis bills to us. Ionis invoices us quarterly for all amounts due under the services agreement and payments are due within 30 days of the receipt of an invoice.

In addition, as long as Ionis continues to consolidate our financials, we will comply with Ionis' policies and procedures and internal controls. As long as we are consolidated into Ionis' financial statements under U.S. GAAP, we may continue to access the following services from Ionis:

- investor relations services,
- human resources and personnel services,
- risk management and insurance services,
- tax related services,
- corporate record keeping services,
- financial and accounting services,
- credit services, and
- COO/CFO/CBO oversight.

However, if we wanted to provide for our own human resources and personnel services, and doing so would not negatively impact Ionis' internal controls and procedures for financial reporting, we can negotiate in good faith with Ionis for a reduced scope of services related to human resources and personnel services. When Ionis determines it should no longer consolidate our financials, we may mutually agree with Ionis in writing to extend the term of this arrangement in six-month increments.

We can establish our own benefits programs or continue to use Ionis' benefits, however we must provide Ionis a minimum advance notice to opt-out of using Ionis' benefits. We do not currently plan to establish our own benefits programs at this time or in the near future.

As of June 30, 2018 and December 31, 2017, we owed Ionis $27.1 million and $14.4 million, respectively.

The following table summarizes the amounts included in our operating expenses and amounts related to the TTR licensing agreement that were generated by transactions with Ionis for the following periods (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Services performed by Ionis	$ 6,045	$ 2,998	$ 7,990	$ 5,955
Active pharmaceutical ingredient manufactured by Ionis	—	2,930	5,229	6,013
Commercial inventory manufactured by Ionis	5,996	—	5,996	—
Sublicensing expenses	—	—	—	48,394
Out-of-pocket expenses paid by Ionis	16,029	5,316	23,016	17,189
Total charges generated by transactions with Ionis	28,070	11,244	42,231	77,551
Payable balance to Ionis at the beginning of the period	27,737	15,000	$ 14,365	24,355
Less: total amounts paid to Ionis during the period	(27,737)	(15,000)	(28,526)	(57,268)
Less: receivable from Ionis	(933)	—	(933)	—
Less: non-cash sublicensing expenses	—	—	—	(33,394)
Total amount payable to Ionis at period end	$ 27,137	$ 11,244	$ 27,137	$ 11,244

6. Stock-Based Compensation

Stock Plans

2015 Equity Incentive Plan

The 2015 Plan provides for the grant of incentive stock options, or ISOs, non-statutory stock options, or NSOs, restricted stock awards, restricted stock unit awards and stock appreciation rights. In December 2017 and April 2018, our board of directors and our stockholders, respectively, approved an additional amendment to our 2015 Equity Incentive Plan to increase the number of shares of common stock reserved for issuance thereunder to 13,500,000 shares of common stock.

As of June 30, 2018, the aggregate number of shares of common stock that may be issued pursuant to stock awards under the 2015 Plan was 13,500,000 and we had 2,348,332 shares available for future issuance under the 2015 Plan. During the three and six months ended June 30, 2018, we granted to employees and directors no shares of restricted stock and options to purchase 2,392,800 and 4,202,892 shares of common stock, respectively. At June 30, 2018 a total of 11,128,684 options were outstanding, of which 3,682,584 were exercisable, 22,984 restricted stock unit awards were outstanding.

2017 Employee Stock Purchase Plan

The number of shares of common stock that may be issued under the Employee Stock Purchase Plan, or ESPP, will automatically increase commencing on January 1, 2018 and ending on (and including) January 1, 2027 in an amount equal to the lesser of (i) 1% of the total number of shares of Common Stock outstanding on December 31st of the preceding calendar year, and (ii) 500,000 shares of Common Stock. On January 1, 2018, 500,000 shares of common stock were added to the ESPP.

As of June 30, 2018, the aggregate number of shares of common stock reserved under the 2017 ESPP was 1,000,000 and we had 984,268 shares available for future issuance under the 2017 ESPP. During the three and six months ended June 30, 2018, no shares and 15,732 shares, respectively, were issued under our 2017 ESPP. At June 30, 2018, accrued liabilities included $0.2 million of ESPP contributions related to our current enrollment period for which the related shares will be issued on July 2, 2018.

Stock-Based Compensation

The following table summarizes stock-based compensation expense for the three and six months ended June 30, 2018 and 2017 (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Research and development expenses	$ 2,242	$ 1,919	$ 4,555	$ 3,520
General and administrative expenses	9,884	2,023	13,954	3,602
Total	$ 12,126	$ 3,942	$ 18,509	$ 7,122

7. Accumulated Other Comprehensive Loss

The following table summarizes changes in accumulated other comprehensive loss (in thousands):

	2018
Balance, as of December 31, 2017	$ (451)
Unrealized gains (losses) on investments, net of tax (1)	106
Currency translation adjustment	48
Net other comprehensive income (loss)	154
Balance, as of June 30, 2018	$ (297)

(1) There was no tax benefit for other comprehensive income (loss) for the six months ended June 30, 2018.

8. Basic and Diluted Net Loss Per Share

In connection with the TTR License Agreement completed on April 17, 2018, with Ionis, we made distributions to Ionis representing the consideration to be paid in cash provided to Ionis in excess of the carrying value of the related assets acquired. These distributions are treated as dividends to Ionis; therefore, we have applied the two-class method loss per share to reflect the allocation of these distributions to the participating Ionis common shares.

The two-class method is an earnings allocation formula that determines loss per share for each class of common stock and participating security according to dividends declared (or accumulated) and participation rights in undistributed earnings. For the purposes of calculating loss per share under the two-class method, we have allocated the net loss between the common stock owned by Ionis and common stock owned by others. Basic loss per share for the participating common shares is computed by dividing total available losses to common stock owned by Ionis and common stock owned by others, by their respective weighted-average of common shares outstanding during the requisite period.

The following table summarizes the distributable losses for the three and six months ended June 30, 2018 and 2017 (in thousands):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Net loss	$ (62,046)	$ (20,359)	$ (91,673)	$ (84,214)
Distribution to Ionis	(7,792)	—	(7,792)	—
Distributable losses	$ (69,838)	$ (20,359)	$ (99,465)	$ (84,214)

The following table summarizes the reconciliation of weighted-average shares outstanding used in the calculation of basic loss per share for the three and six months ended June 30, 2018 and 2017:

	Three Months Ended June 30,		Six Months Ended June 30,	
Determination of shares:	2018	2017	2018	2017
Weighted-average preferred shares outstanding	—	28,884,540	—	28,884,540
Weighted-average common shares outstanding owned by Ionis	60,832,494	—	53,182,685	—
Weighted-average common shares outstanding owned by others	21,492,157	—	21,332,650	—
Total weighted-average shares outstanding	82,324,651	28,884,540	74,515,335	28,884,540

The following table summarizes the calculation of basic loss per share for the three and six months ended June 30, 2018 and 2017 (in thousands, except per share amounts):

	Three Months Ended June 30,		Six Months Ended June 30,	
	2018	2017	2018	2017
Losses allocated to preferred shares	$ —	$ (20,359)	$ —	$ (84,214)
Weighted-average preferred shares outstanding	—	28,884,540	—	28,884,540
Basic loss per preferred share	$ —	$ (0.70)	$ —	$ (2.92)
Losses allocated to Ionis	$ (51,606)	$ —	$ (70,990)	$ —
Plus: Distribution to Ionis	7,792	—	7,792	—
Losses available to Ionis	$ (43,814)	—	(63,198)	—
Weighted-average common shares outstanding owned by Ionis	60,832,494	—	53,182,685	—
Basic loss per common share owned by Ionis	$ (0.72)	$ —	$ (1.19)	$ —
Losses allocated to common shares owned by others	$ (18,232)	$ —	$ (28,475)	$ —
Weighted-average common shares outstanding owned by others	21,492,157	—	21,332,650	—
Basic loss per common share owned by others	$ (0.85)	$ —	$ (1.33)	$ —

For the three and six months ended June 30, 2018 and 2017, we incurred a net loss; therefore, we did not include dilutive common equivalent shares in the computation of diluted net loss per share because the effect would have been anti-dilutive. Common stock from the following would have had an anti-dilutive effect on net loss per share:

- Options to purchase common stock;

- Unvested restricted stock units; and
- Employee Stock Purchase Plan, or ESPP.

9. Initial Public Offering

On July 19, 2017, we completed our IPO. Total net proceeds were $182.3 million, including the following:

- $132.3 million from the sale of 17,968,750 shares of our common stock in our IPO of which $25 million was invested by Ionis; and
- $50.0 million from the purchase of 6,250,000 shares by Novartis in a concurrent private placement.

In addition, both of the following occurred in connection with the completion of our IPO on July 19, 2017:

- the conversion of all outstanding shares of Series A convertible preferred stock into 28,884,540 shares of our common stock; and
- the conversion of $106.0 million of outstanding principal plus accrued interest from the line of credit with Ionis into 13,438,339 shares of common stock.

10. Commitments and Contingencies

Operating Lease

On April 5, 2018, we entered into an operating lease agreement with MEPT Seaport 13 Stillings LLC, or MEPT, for 30,175 square feet of office space located in Boston, Massachusetts for our new corporate headquarters. The anticipated commencement date of the lease is August 15, 2018. The initial term of the lease is 123 months with one five-year renewal option. Future minimum annual lease payments under this lease are $0.8 million in 2018, $2.2 million in 2019, $2.3 million in 2020, $2.3 million in 2021, $2.3 million in 2022, and $14.2 million thereafter. MEPT will provide us with a three-month free rent period and a tenant improvement allowance up to $3.8 million. We provided MEPT with a letter of credit to secure our obligations under the lease in the initial amount of $2.4 million, to be reduced to $1.8 million on the third anniversary of the rent commencement date and to $1.2 million on the fifth anniversary of the rent commencement date if we meet certain conditions set forth in the lease at each such time. This balance is included in deposits and other assets on the accompanying condensed consolidated balance sheets.

11. Subsequent Events

TTR License Agreement Regulatory Milestone

On July 11, 2018, we received marketing authorization, or MA, approval for TEGSEDI from the European Commission, or EC, for the treatment of stage 1 or stage 2 polyneuropathy in adult patients with hereditary transthyretin amyloidosis, or hATTR amyloidosis, in Europe, or EU. As a result of the MA approval in the EU, we issued on August 3, 2018, 1,597,571 of common stock shares to Ionis as payment of the $40.0 million regulatory milestone for TEGSEDI, increasing Ionis' ownership percentage to slightly above 75 percent.

PTC Therapeutics

On August 1, 2018, we entered into an exclusive license agreement with PTC Therapeutics to commercialize TEGSEDI and WAYLIVRA in Latin America. Under the license agreement, we will receive an $18 million upfront payment, $12 million which is due in the third quarter of 2018 and $6 million which will be paid on the earlier of FDA or EMA approval of WAYLIVRA. We have the potential to earn $8 million of additional regulatory milestone payments for the approval of each drug. We will receive royalties from PTC in the mid-twenty percent range on net sales in Latin America for each drug. PTC's obligation to pay us royalties begins on the earlier of 12 months after the first commercial sale of a product in Brazil or the date that PTC recognizes revenue of at least $10 million in Latin America. Consistent with the agreements between us and Ionis, we will share all payment with Ionis, including royalties.

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

In this Report on Form 10-Q, unless the context requires otherwise, "Akcea," "Company," "we," "our," and "us," means Akcea Therapeutics, Inc. and our subsidiaries.

Forward-Looking Statements

In addition to historical information contained in this Report on Form 10-Q, this Report includes forward-looking statements regarding our financial position, outlook and our business, and the therapeutic and commercial potential of TEGSEDI™ (inotersen), WAYLIVRA™ (volanesorsen) and our other products in development. Any statement describing our goals, expectations, financial or other projections, intentions or beliefs, is a forward-looking statement and should be considered an at-risk statement. Such statements are subject to certain risks and uncertainties, particularly those inherent in the process of discovering, developing and commercializing drugs that are safe and effective for use as human therapeutics and statements regarding the building of a business around such drugs and statements regarding certain regulatory approvals and the timing thereof. Our forward-looking statements also involve assumptions that, if they never materialize or prove correct, could cause our results to differ materially from those expressed or implied by such forward-looking statements. Although our forward-looking statements reflect the good faith judgment of our management, these statements are based only on facts and factors currently known by us. As a result, you are cautioned not to rely on these forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those identified in this Quarterly Report on Form 10-Q and those discussed in the section titled "Risk Factors" set forth in Part II, Item 1A of this Quarterly Report on Form 10-Q and in our other Securities and Exchange Commission, or SEC, filings. You should not rely upon forward-looking statements as predictions of future events. Furthermore, such forward-looking statements speak only as of the date of this report. Except as required by law, we undertake no obligation to update any forward-looking statements to reflect events or circumstances after the date of such statements.

The following discussion and analysis should be read in conjunction with (1) our financial statements and accompanying notes included in this Quarterly Report on Form 10-Q, and (2) the audited financial statements and accompanying notes thereto and the related Management's Discussion and Analysis of Financial Condition and Results of Operations for the fiscal year ended December 31, 2017, which are contained in our Annual Report on the Form 10-K for the fiscal year ended on December 31, 2017 filed on February 28, 2018 with the SEC.

OVERVIEW

We are a biopharmaceutical company focused on developing and commercializing drugs to treat patients with rare and serious diseases with leading-edge, RNA-targeted medicines. Our priority is to bring transformative medicines to patients by driving clinical program execution, understanding patient and physician needs, preparing the market, creating market access, and commercializing our products on a global basis. As an affiliate of Ionis Pharmaceuticals, Inc., or Ionis, we have a robust portfolio of development-, registration- and now commercial-stage drugs covering multiple targets and diseases using antisense therapeutics. Our immediate focus is to prepare for the approval and commercial launch of TEGSEDI and WAYLIVRA as we continue to drive our other clinical programs forward through development. On July 11, 2018, we received our first product approval. TEGSEDI received marketing authorization, or MA, approval from the European Commission, or EC, for the treatment of stage 1 or stage 2 polyneuropathy in adult patients with hereditary transthyretin amyloidosis, or hATTR amyloidosis. We estimate that there are approximately 50,000 patients globally with hATTR amyloidosis, the majority of which have symptoms of polyneuropathy.

The approval of TEGSEDI follows the positive recommendation by the Committee for Medicinal Products for Human Use, or CHMP, of European Medicines Agency, or EMA. TEGSEDI is the world's first subcutaneous, RNA-targeted therapeutic that substantially reduces the production of TTR protein. Importantly, TEGSEDI is Akcea's first commercially approved drug, and our launch activities are underway in Europe as our launch readiness continues in the US and Canada. TEGSEDI is also currently under regulatory review by the U.S. Food and Drug Administration, or FDA, and we anticipate FDA approval and launch of TEGSEDI in the United States, or U.S., in 2018. To further support the hATTR amyloidosis community, Akcea and Ambry Genetics Corporation, or Ambry, a Konica Minolta company, launched hATTR Compass™ in the U.S. and Canada, a no-cost, confidential genetic testing and genetic counseling program for people with suspected hATTR amyloidosis. This program is intended to empower people with accurate genetic information, so they can make informed decisions about their healthcare.

We obtained TEGSEDI and AKCEA-TTR-L$_{Rx}$ under an exclusive license from Ionis. With the licensing agreement, we have expanded our efforts to treat people with serious and under-served rare diseases focusing on transthyretin amyloidosis, or ATTR amyloidosis, and cardiometabolic diseases.

ATTR

TEGSEDI is an antisense drug designed to reduce the production of transthyretin, or TTR protein, to treat hATTR amyloidosis, a severe, rare and fatal genetic disease. In patients with hATTR amyloidosis, both the hereditary and wild-type, or wt, TTR protein builds up as fibrils in tissues, such as the peripheral nerves, heart, gastrointestinal system, eyes, kidneys, central nervous system, thyroid and bone marrow. The presence of TTR fibrils interferes with the normal functions of these tissues. The progressive accumulation of TTR amyloid deposits in these tissues and organs leads to sensory, motor and autonomic dysfunction often having debilitating effects on multiple aspects of a patient's life and eventually leads to death.

TEGSEDI received marketing authorization from the EC. It is currently under regulatory review for marketing authorization in the U.S. and Canada. The FDA has granted Orphan Drug Designation and Fast Track Status to TEGSEDI for the treatment of patients with polyneuropathy due to hATTR amyloidosis and has assigned a prescription drug user fee act, or PDUFA, date of October 6, 2018. The EMA had granted accelerated assessment and Orphan Drug Designation to TEGSEDI. In Canada, our New Drug Submission, or NDS, was granted Priority Review by Health Canada.

TEGSEDI was discovered and developed by Ionis Pharmaceuticals and was licensed by us in April 2018. In addition to TEGSEDI, we and Ionis are developing AKCEA-TTR-L$_{Rx}$ for hereditary and wild-type forms of ATTR and are planning to begin clinical development of this program in 2018.

Cardiometabolic

Our lipid/cardiometabolic drugs, WAYLIVRA, AKCEA-APO(a)-L $_{Rx}$, AKCEA-ANGPTL3-L$_{Rx}$ and AKCEA-APOCIII-L$_{Rx}$, are all based on antisense technology developed by Ionis. Our most advanced drug, WAYLIVRA, is currently under review by regulatory agencies in the U.S., EU and Canada for the treatment of people with familial chylomicronemia syndrome, or FCS. On May 10, the FDA's Advisory Committee voted to support approval of WAYLIVRA for the treatment of people with FCS. The committee's recommendation will be considered by the FDA in its review of Akcea's NDA for WAYLIVRA. The PDUFA date for completion of the review of WAYLIVRA is August 30, 2018. In Canada, our New Drug Submission, or NDS, was granted Priority Review by Health Canada. FCS is a severe and rare lipid disorder characterized by extremely elevated levels of triglycerides. FCS has life-threatening consequences such as acute pancreatitis and the lives of patients with this disease are impacted daily by the associated symptoms. In our clinical program, we have observed consistent and substantial (>70%) decreases in triglycerides and improvements in other manifestations of FCS, including pancreatitis attacks and abdominal pain. We believe the safety and efficacy data from the WAYLIVRA program demonstrate a favorable risk-benefit profile for patients with FCS. We are preparing for approval and launch of WAYLIVRA in 2018. WAYLIVRA is also in Phase 3 clinical development for the treatment of familial partial lipodystrophy, or FPL. Our other three lipid/cardiometabolic drugs are currently in Phase 2 clinical development.

Commercial Preparation

We are continuing to build our infrastructure as we prepare to commercialize our drugs globally with a focus on lipid specialists as the primary call point for FCS and amyloidosis specialists including neurologists, cardiologists and hematologists for hATTR amyloidosis. We have hired general managers to lead operations in the U.S., United Kingdom, or UK and the Nordic region, France, Germany and Canada. We have also hired sales team members and additional field medical personnel to further disease education prior to both product launches. A key element of our commercial strategy is to provide the specialized, patient-centric support required to successfully address rare disease patient populations. We believe our focus on treating patients with inadequately addressed rare and serious diseases will allow us to partner efficiently and effectively with the specialized medical community that supports these underserved patient communities.

To maximize the commercial potential of two of the drugs in our pipeline, we initiated a strategic collaboration with Novartis Pharma AG, or Novartis, in January 2017 for the development and commercialization of AKCEA-APO(a)-L$_{Rx}$ and AKCEA-APOCIII-L$_{Rx}$. We believe Novartis brings significant resources and expertise to the collaboration that can accelerate our ability to deliver these potential therapies to the large populations of patients who have high cardiovascular risk due to inadequately treated lipid disorders. As part of our collaboration, we received $75.0 million in an upfront option payment, of which we retained $60.0 million and paid $15.0 million to Ionis as a sublicense fee. Under our agreement with Novartis, after we complete Phase 2 development of each of AKCEA-APO(a)-L$_{Rx}$ (data planned for the second half of 2018) and AKCEA-APOCIII-L$_{Rx}$ (data planned for 2019), and if, on a drug-by-drug basis, Novartis exercises its option to license a drug and pays us the $150.0 million license fee to do so, Novartis would conduct and pay for a Phase 3 cardiovascular outcome study in high-risk patients and, if approved, commercialize each such licensed drug worldwide. Novartis will have 60 days following the end of the applicable end of Phase 2 meeting to exercise its option for each of these drugs. We plan to co-commercialize any licensed drugs commercialized by Novartis in selected markets, under terms and conditions that we plan to negotiate with Novartis in the future, through the specialized sales force we are building to commercialize TEGSEDI and WAYLIVRA, if approved. Overall, we are eligible to receive license fees, milestone payments and royalties on sales of each drug Novartis licenses, if and when, it meets the development, regulatory and sales milestones specified in our agreement. We will share any license fees, milestone payments and royalties equally with Ionis.

Our strategic collaboration with Novartis has a potential aggregate transaction value of over $1.0 billion, plus royalties, which we would generally be required to share equally with Ionis. The calculation of potential aggregate transaction value assumes that Novartis licenses, successfully develops and achieves regulatory approval for both AKCEA-APO(a)-L$_{Rx}$ and AKCEA-APOCIII-L$_{Rx}$ in the U.S., EU and Japan, and that Novartis achieves pre-specified sales targets with respect to both drugs. In addition, to the upfront payment that we have received, for AKCEA-APO(a)-L$_{Rx}$ we are eligible to receive up to $600.0 million in milestone payments, including $25.0 million for the achievement of a development milestone, up to $290.0 million for the achievement of regulatory milestones and up to $285.0 million for the achievement of commercialization milestones. In addition, for AKCEA-APOCIII-L$_{Rx}$ we are eligible to receive up to $530.0 million in milestone payments, including $25.0 million for the achievement of a development milestone, up to $240.0 million for the achievement of regulatory milestones and up to $265.0 million for the achievement of commercialization milestones. We are also eligible to receive tiered royalties in the mid-teens to low twenty percent range on net sales of AKCEA-APO(a)-L$_{Rx}$ and AKCEA-APOCIII-L$_{Rx}$, Novartis will reduce these royalties upon the expiration of certain patents or if a generic competitor negatively impacts the product in a specific country. We will pay 50% of these license fees, milestone payments and royalties to Ionis as a sublicense fee. See Note 4, *Strategic Collaboration with Novartis,* to our consolidated financial statements for additional information.

We began recognizing revenue under the collaboration with Novartis upon its initiation. Our revenue for the first six months of 2018 was $35.4 million. Our net losses have resulted from costs incurred in developing TEGSEDI and WAYLIVRA and the other drugs in our pipeline, preparing to commercialize TEGSEDI and WAYLIVRA, and general and administrative activities associated with our operations. We expect to continue to incur significant expenses and increasing operating losses for the foreseeable future as we continue to develop TEGSEDI, WAYLIVRA and our other drugs, and seek regulatory approval for and prepare to commercialize TEGSEDI and WAYLIVRA. We expect to incur significant expenses to continue to build the infrastructure to support commercialization, including manufacturing, marketing, sales and distribution functions. Further, we expect to incur additional costs associated with operating as a public company and in building our internal resources to become less reliant on Ionis.

As of June 30, 2018, we had cash, cash equivalents and investments of $381.9 million. We have funded our operating activities through a $100.0 million cash contribution that we received from Ionis in 2015, $75.0 million from initiating our collaboration with Novartis that we received in the first quarter of 2017 and $106.0 million in drawdowns under our line of credit with Ionis that we received in the first and second quarters of 2017. In July 2017, we completed our IPO and raised $182.3 million in net proceeds from the IPO including the $50 million Novartis concurrent private placement. In April 2018, we completed a licensing transaction with Ionis to commercialize TEGSEDI for hATTR amyloidosis. In conjunction with this transaction, Ionis purchased 10.7 million shares of our common stock for $200 million. See Note 5, *Development, Commercialization and License Agreements and Services Agreement with Ionis*, to our condensed consolidated financial statements included in this Form 10-Q for more information about our TTR licensing agreement with Ionis. We plan to use our cash, cash equivalents and investments on hand as of June 30, 2018, to further our commercialization efforts of TEGSEDI and WAYLIVRA and continue the advancement of our pipeline drugs.

We expect that our cash, cash equivalents and investments of $381.9 million as of June 30, 2018 will be sufficient to fund our operating expenses and capital expenditure requirements for at least the next 12 months from issuance of these financial statements. However, we expect to raise additional funding in the future to continue developing the drugs in our pipeline and to commercialize TEGSEDI, or any other approved drug, including WAYLIVRA. We may seek to obtain additional financing in the future through the issuance of our common stock, through other equity or debt financings or through collaborations or partnerships with other companies. We may not be able to raise additional capital on terms acceptable to us, or at all, and any failure to raise capital as and when needed could compromise our ability to execute on our business plan.

Our Relationship with Ionis

Prior to January 2015, the lipid drugs we licensed from Ionis were part of Ionis' broad pipeline of antisense drugs. Ionis' employees performed all of the development, regulatory and manufacturing activities for these drugs either themselves or through third-party providers. As such, Ionis incurred all of the expenses associated with these activities and reported them in its consolidated financial statements. Ionis formed Akcea as a wholly owned subsidiary to complete development of and commercialize Ionis' drugs to treat lipid disorders. We began business operations in January 2015.

We exclusively licensed WAYLIVRA, AKCEA-APO(a)-L $_{Rx}$, AKCEA-ANGPTL3-L$_{Rx}$ and AKCEA-APOCIII-L$_{Rx}$ from Ionis effective in January 2015, and TEGSEDI and AKCEA-TTR-L$_{Rx}$ in April 2018. Prior to then, Ionis had been advancing these drugs in development and incurring the expenses for those activities. Under our license agreement with Ionis, Ionis continued and is continuing to conduct development, regulatory and manufacturing activities for our drugs and charge us for this work. In this way, we benefit from Ionis' more than 25 years of experience developing and manufacturing antisense drugs. As we are building our development, regulatory and manufacturing capabilities and capacity, we expect to assume increasing responsibility for these functions and Ionis' responsibilities will decrease. We expect that our collaborative approach will allow us to build these capabilities and capacity while still working closely with Ionis as we transition our drug development activities.

We pay Ionis for the research and development expenses it incurs on our behalf, which include both external and internal expenses in accordance with our license agreement with Ionis. External research and development expenses include costs for contract research organizations, or CROs, costs to conduct nonclinical and clinical studies on our drugs, costs to acquire and evaluate clinical study data such as investigator grants, patient screening fees and laboratory work, and fees paid to consultants. Internal development expenses include costs for the work that Ionis' development employees perform for us. Ionis charges us a full-time equivalent rate that covers personnel-related expenses, including salaries and benefits, plus an allocation of facility-related expenses, including rent, utilities, insurance and property taxes, for those research and development employees who work either directly or indirectly on the development of our drugs. In accordance with the license agreement, we pay Ionis for external research and development expenses and internal research and development expenses. We also pay Ionis for the active pharmaceutical ingredient, or API, and drug product we use in our nonclinical and clinical studies for all of our drugs. Ionis manufactures the API for us and charges us a price per gram consistent with the price Ionis charges its pharmaceutical partners, which includes the cost for direct materials, direct labor and overhead required to manufacture the API. If we need the API filled in vials or pre-filled syringes for our clinical studies, Ionis will contract with a third party to perform this work and Ionis will charge us for the resulting cost.

Under the services agreement, Ionis also provides us certain services, including, without limitation, general and administrative support services and development support services. We pay Ionis for our share of the internal and external expenses for each of these functions based on our relative use of each function, plus an allocation of facility-related expenses. As our business grows and we assume increasing responsibility from Ionis, we are assuming direct responsibility for procuring and financing the services we currently receive from Ionis.

We do not pay a mark-up or profit on the external or internal expenses Ionis bills to us or on the cost of the drugs Ionis manufactures for us. Moreover, Ionis only charges us for the portion of its resources that we use. For example, we do not have to pay for a full-time person if we only need the person's skills for 50% of the time. In this way, we can increase our headcount as our requirements grow. We believe that our expenses reasonably reflect the expenses we would have incurred if we had the capabilities and capacity in place to perform this work ourselves. Further, we do not believe that our expenses will increase significantly as a result of assuming development, regulatory, manufacturing and administrative responsibilities from Ionis because we will only assume these functions when we believe we can do so in a cost-efficient manner. See Note 5, *Development, Commercialization and License Agreement and Services Agreement with Ionis*, to our condensed consolidated financial statements included in this Form 10-Q for more information on our agreements with Ionis.

In conjunction with the license of TEGSEDI and AKCEA-TTR-L$_{Rx}$ in April 2018, we and Ionis have agreed to amend the cost share agreement to reflect the change in our needs and relationship with Ionis. The intent of the amendment is to ensure a smooth transition of the TTR franchise and adequate support from Ionis in key functions, while maintaining overall efficiency. These changes took effect in the second quarter of 2018.

Recent Key Achievements

- Approval of TEGSEDI in the European Union for the treatment of stage 1 or stage 2 polyneuropathy in adult patients with hereditary transthyretin amyloidosis (hATTR)
- Vote in favor of supporting approval of WAYLIVRA for treatment of FCS, by FDA Advisory Committee
- Results published from pivotal study of TEGSEDI in July 5th edition of the New England Journal of Medicine
- Appointment of industry leader Dr. Richard Moscicki to our Board of Directors
- Launch of hATTR Compass, a genetic testing program for people with suspected hereditary ATTR Amyloidosis
- Completion of landmark RE-FOCUS study to assess disease burden in people living with FCS
- Announcement and closing of the partnership with Ionis to commercialize the TTR franchise

Critical Accounting Policies

The accounting policies followed in the preparation of our interim condensed consolidated financial statements appearing at the beginning of this Quarterly Report on Form 10-Q are consistent in all material respects with those included in Note 1 of our Annual Report on the Form 10-K for the fiscal year ended on December 31, 2017 and updated below as necessary.

Revenue Recognition

In May 2014, the Financial Accounting Standards Board, or FASB, issued Accounting Standards Update, or ASU, No. 2014-09, which amends the guidance for accounting for revenue from contracts with customers. This ASU supersedes the revenue recognition requirements in ASC Topic 605, *Revenue Recognition*, or Topic 605, and creates a new Topic 606, *Revenue from Contracts with Customers*, or Topic 606. Under Topic 606, an entity recognizes revenue when its customer obtains control of promised goods or services, in an amount that reflects the consideration which the entity expects to receive in exchange for those goods or services.

To determine revenue recognition for arrangements that an entity determines are within the scope of Topic 606, the entity performs the following five steps: (i) identifies the contract(s) with a customer; (ii) identifies the performance obligations in the contract; (iii) determines the transaction price; (iv) allocates the transaction price to the performance obligations in the contract; and (v) recognizes revenue when (or as) the entity satisfies a performance obligation. At contract inception, once the contract is determined to be within the scope of Topic 606, we assess the goods or services promised within each contract and determine those that are performance obligations, and assess whether each promised good or service is distinct. When we offer options for additional goods or services, such as an option to license a drug in the future or for additional goods or services to be provided in the future, we evaluate whether options are material rights that should be treated as additional performance obligations. We typically have not concluded that the option to license a drug or the options for additional goods or services that may be requested in the future under our collaboration agreement are material rights as the amounts attributable to such options represent standalone selling price, and therefore no consideration is allocated to these items at the inception of an agreement. When a partner exercises its option to license a drug or requests the additional goods or services, a new performance obligation is created for that item. Once performance obligations are identified, we then recognize as revenue the amount of the transaction price that we allocated to the respective performance obligation when (or as) each performance obligation is satisfied at a point in time or over time. If the performance obligation is satisfied over time, we recognize revenue based on the use of an output or input method. Through June 30, 2018, we have one revenue stream from our strategic collaboration, option and license agreement, or collaboration agreement, with Novartis Pharma AG, or Novartis, which we entered into in January 2017. For a complete discussion of the accounting for our collaboration revenue, see Note 4, *Strategic Collaboration with Novartis*.

Effective January 1, 2018, we adopted Topic 606 using the full retrospective transition method. Under this method, we revised our consolidated financial statements for prior period amounts including the interim periods included in this Report on Form 10-Q, as if Topic 606 had been effective for such periods. The references "as revised" used throughout this Form 10-Q refer to revisions of amounts originally reported for the three and six months ended June 30, 2017 and the year ended December 31, 2017 as a result of our adoption of Topic 606.

Impact of Adoption

As a result of adopting Topic 606 on January 1, 2018, we have revised our comparative financial statements for the prior year as if Topic 606 had been effective for that period. Under Topic 605, we recognized revenue over time. Under Topic 606, we recognize revenue using the input method based on total costs of performing services over time. As a result, the following financial statement line items for fiscal year 2017 were affected.

Condensed Consolidated Balance Sheets

	December 31, 2017 (in thousands)		
	As Revised Under Topic 606	As Originally Reported Under Topic 605	Effect of Change
Current portion of deferred revenue	$ 58,192	$ 50,579	$ 7,613
Long-term portion of deferred revenue	12,501	8,306	4,195
Accumulated deficit	$ (296,221)	$ (284,413)	$ (11,808)

Condensed Consolidated Statements of Operations and Comprehensive Loss

	Three Months Ended June 30, 2017 (in thousands, except per share data)		
	As Revised Under Topic 606	As Originally Reported Under Topic 605	Effect of Change
Research and development revenue under collaborative agreements	$ 5,713	$ 14,128	$ (8,415)
Loss from operations	(19,689)	(11,274)	(8,415)
Net loss	(20,359)	(11,944)	(8,415)
Net loss per share of preferred stock, basic and diluted	$ (0.70)	$ (0.41)	$ (0.29)

	Six Months Ended June 30, 2017 (in thousands, except per share data)		
	As Revised Under Topic 606	As Originally Reported Under Topic 605	Effect of Change
Research and development revenue under collaborative agreement	$ 11,807	$ 23,725	$ (11,918)
Loss from operations	(83,065)	(71,147)	(11,918)
Net loss	(84,214)	(72,296)	(11,918)

Net loss per share of preferred stock, basic and diluted	$ (2.92)	$ (2.50)	$ (0.42)

Condensed Consolidated Statement of Cash Flows

	Six Months Ended June 30, 2017 (in thousands)		
	As Revised Under Topic 606	As Originally Reported Under Topic 605	Effect of Change
Net loss	$ (84,214)	$ (72,296)	$ (11,918)
Adjustments to reconcile net loss to net cash provided by operating activities:			
Deferred revenues	63,193	51,275	11,918
Cash and cash equivalents at beginning of period	7,857	7,857	—
Cash and cash equivalents at end of period	$ 75,445	$ 75,445	$ —

RESULTS OF OPERATIONS

Comparison of the Three Months Ended June 30, 2018 and 2017

Revenue

For the three months ended June 30, 2018, we recognized $18.3 million compared to $5.7 million for the three months ended June 30, 2017 (as revised), in research and development revenue from our collaboration with Novartis. The increase in revenue is consistent with an increase in the pattern of performance related to increased research and development activities for AKCEA-APO(a)-L_{Rx}, for which we completed patient enrollment in our Phase 2b study in the first quarter of 2018, and increased research and development activities for AKCEA-APOCIII-L_{Rx}, for which we initiated patient enrollment in our Phase 2b study in the first quarter of 2018.

Operating Expenses

Operating expenses for the three months ended June 30, 2018, were $81.7 million compared to $25.4 million for the same period in 2017. Our operating expenses increased in part as a result of our growth in headcount to support development and pre-commercialization launch activities of TEGSEDI and WAYLIVRA.

In order to analyze and compare our results of operations to other similar companies, we believe it is important to exclude non-cash stock-based compensation expense related to equity awards from our operating expenses. We believe non-cash stock-based compensation expense is not indicative of our operating results or cash flows from our operations. Further, we internally evaluate the performance of our operations excluding it.

Research and Development Expenses

The following table sets forth our research and development expenses for the periods presented (in thousands):

	Three Months Ended June 30,	
	2018	2017
External research and development expenses	$ 31,390	$ 11,795
Research and development personnel and overhead expenses	5,825	4,773
Total research and development expenses, excluding non-cash stock-based compensation expense	37,215	16,568
Non-cash stock-based compensation expense	2,242	1,919
Total research and development expenses	$ 39,457	$ 18,487

Research and development expenses were $37.2 million for the three months ended June 30, 2018 compared to $16.6 million for the same period in 2017. Our increase in research and development expenses was primarily due to development and medical affairs activities related to TEGSEDI, activities associated with our Phase 2b study for AKCEA-APO(a)-L_{Rx}, which enrolled more than the planned 270 patients, and activities related to the Phase 2b study for AKCEA-APOCIII-L_{Rx}. All amounts exclude non-cash stock-based compensation expense related to equity awards.

General and Administrative Expenses

The following table sets forth our general and administrative expenses for the periods presented (in thousands):

	Three Months Ended June 30,	
	2018	2017
General and administrative support expenses	$ 9,306	$ 2,308
Pre-commercialization expenses	23,097	2,584
Total general and administrative expenses, excluding non-cash stock-based compensation expense	32,403	4,892
Non-cash stock-based compensation expense	9,884	2,023
Total general and administrative expenses	$ 42,287	$ 6,915

General and administrative expenses were $32.4 million for the three months ended June 30, 2018 compared to $4.9 million for the same period in 2017. Our general and administrative expenses increased due to the ongoing buildout of our commercial organization and advancement of pre-commercialization activities necessary to launch TEGSEDI in the EU and, if approved for marketing in the U.S. and Canada, and WAYLIVRA, if approved for marketing in the US, EU and Canada as well as expenses incurred associated with the licensing transaction with Ionis. All amounts exclude non-cash stock-based compensation expense related to equity awards.

Investment Income

Investment income for the three months ended June 30, 2018 totaled $1.5 million compared to $0.2 million for the same period in 2017. The increase in investment income was primarily due to a higher average investment balance and an increase in the interest rates on high quality debt and U.S. government agencies investments during 2018 compared to 2017.

Interest Expense

Interest expense is comprised entirely of interest incurred under our line of credit agreement with Ionis. We incurred no interest expense during the three months ended June 30, 2018. Interest expense for the three months ended June 30, 2017 totaled $1.0 million. The outstanding principal and accrued interest under our line of credit converted into 13,438,339 shares of our common stock in connection with the closing of our IPO in July 2017 and we no longer have access to this line of credit following the closing of our IPO.

Net Loss and Net Loss Per Share

Net loss for the three months ended June 30, 2018 was $62.0 million compared to $20.4 million for the same period in 2017 (as revised). We incurred a higher net loss for the three months ended June 30, 2018 compared to the three months ended June 30, 2017 primarily due to new development and pre-commercialization activities for TEGSEDI, the increase in expenses related to pre-commercialization and development activities for WAYLIVRA and our other drugs, and the ongoing global expansion of our company. Basic and diluted net loss per preferred share for the three months ended June 30, 2017 (as revised) was $0.70. We had no outstanding preferred shares at June 30, 2018. Basic and diluted net loss per common share for the three months ended June 30, 2018 was $0.85. We had no outstanding common stock at June 30, 2017.

Comparison of the Six Months Ended June 30, 2018 and 2017

Revenue

For the six months ended June 30, 2018, we recognized $35.4 million compared to $11.8 million for the six months ended June 30, 2017 (as revised), in research and development revenue from our collaboration with Novartis. The increase in revenue is consistent with an increase in the pattern of performance related to increased research and development activities for AKCEA-APO(a)-L$_{Rx}$, for which we completed patient enrollment in our Phase 2b study in the first quarter, and increased research and development activities for AKCEA-APOCIII-L$_{Rx}$, for which we initiated patient enrollment in our Phase 2b study in the first quarter.

Operating Expenses

Operating expenses for the six months ended June 30, 2018, were $129.2 million compared to $94.9 million for the same period in 2017. Our operating expenses increased in part by increases in expenses due to the acquisition of TEGSEDI, our growth in headcount, pre-commercial launch activities, development activities and expenses related to the TTR licensing transaction.

In order to analyze and compare our results of operations to other similar companies, we believe it is important to exclude non-cash stock-based compensation expense related to equity awards from our operating expenses. We believe non-cash stock-based compensation expense is not indicative of our operating results or cash flows from our operations. Further, we internally evaluate the performance of our operations excluding it.

Research and Development Expenses

The following table sets forth our research and development expenses for the periods presented (in thousands):

	Six Months Ended June 30,	
	2018	**2017**
External research and development expenses	$ 52,859	$ 22,308
Sublicensing expenses	—	48,394
Research and development personnel and overhead expenses	10,013	9,060
Total research and development expenses, excluding non-cash stock-based compensation expense	62,872	79,762
Non-cash stock-based compensation expense	4,555	3,520
Total research and development expenses	$ 67,427	$ 83,282

Research and development expenses were $62.9 million for the six months ended June 30, 2018 compared to $79.8 million for the same period in 2017. Our decrease in research and development expenses was primarily due to sublicensing expenses related to our collaboration with Novartis, which we incurred in the first quarter of 2017, the majority of which were non-cash. This decrease was offset in part by an increase related to development activities during the first six months of 2018 primarily associated with the acquisition of TEGSEDI in the beginning of the second quarter, completion of enrollment in our Phase 2b study for AKCEA-APO(a)-L$_{Rx}$ in the first quarter of 2018, which enrolled more than the planned 270 patients, and initiation of the Phase 2b study for AKCEA-APOCIII-L$_{Rx}$, also in the first quarter of 2018. All amounts exclude non-cash stock-based compensation expense related to equity awards.

General and Administrative Expenses

The following table sets forth our general and administrative expenses for the periods presented (in thousands):

	Six Months Ended June 30,	
	2018	**2017**
General and administrative support expenses	$ 14,793	$ 3,884
Pre-commercialization expenses	33,005	4,104
Total general and administrative expenses, excluding non-cash stock-based compensation expense	47,798	7,988
Non-cash stock-based compensation expense	13,954	3,602
Total general and administrative expenses	$ 61,752	$ 11,590

General and administrative expenses were $47.8 million for the six months ended June 30, 2018 compared to $8.0 million for the same period in 2017. Our general and administrative expenses increased due to the ongoing buildout of our commercial organization and advancement of pre-commercialization activities necessary to launch TEGSEDI in the EU and, if approved for marketing in the U.S. and Canada, and WAYLIVRA, if approved for marketing in the US, EU and Canada as well as expenses incurred associated with the licensing transaction with Ionis. All amounts exclude non-cash stock-based compensation expense related to equity awards.

Investment Income

Investment income for the six months ended June 30, 2018 totaled $2.4 million compared to $0.3 million for the same period in 2017. The increase in investment income was primarily due to a higher average investment balance and an increase in the interest rates on high quality debt and U.S. government agencies investments during 2018 compared to 2017.

Interest Expense

Interest expense is comprised entirely of interest incurred under our line of credit agreement with Ionis. We incurred no interest expense during the six months ended June 30, 2018. Interest expense for the six months ended June 30, 2017 totaled $1.5 million. The outstanding principal and accrued interest under our line of credit converted into 13,438,339 shares of our common stock in connection with the closing of our IPO in July 2017 and we no longer have access to this line of credit following the closing of our IPO.

Net Loss and Net Loss Per Share

Net loss for the six months ended June 30, 2018 was $91.7 million compared to $84.2 million for the same period in 2017 (as revised). We incurred a higher net loss for the six months ended June 30, 2018 compared to the six months ended June 30, 2017 primarily due to development and commercial activities associated with TEGSEDI, which was acquired in the second quarter of 2018, and the expenses related to pre-commercialization and development activities for WAYLIVRA and our other drugs, and the ongoing global expansion of our company. Basic and diluted net loss per preferred share for the six months ended June 30, 2017 (as revised) was $2.92. We had no outstanding preferred shares at June 30, 2018. Basic and diluted net loss per common share for the six months ended June 30, 2018 was $1.33. We had no outstanding common stock at June 30, 2017.

LIQUIDITY AND CAPITAL RESOURCES

At June 30, 2018, we had cash, cash equivalents and investments of $381.9 million and accumulated deficit of $387.9 million.

We have funded our operating activities through a $100.0 million cash contribution that we received from Ionis in 2015, $75.0 million from initiating our collaboration with Novartis that we received in the first quarter of 2017 and $106.0 million in drawdowns under our line of credit with Ionis that we received in the first and second quarters of 2017. Our borrowings under our line of credit agreement with Ionis converted into shares of our common stock at the IPO price in connection with the closing of our IPO in July 2017. We no longer have access to the line of credit. Additionally, in July 2017 we received $182.3 million in net proceeds from our IPO, including $25.0 million Ionis invested in our IPO, and the Novartis concurrent private placement of $50 million.

In April 2018, the stockholders other than Ionis and its affiliates approved the development, commercialization, collaboration and license agreement, or License Agreement, pursuant to which we acquired an exclusive license from Ionis to TEGSEDI and AKCEA-TTR-L $_{Rx}$ and a stock purchase agreement, or Ionis SPA, with Ionis, our majority shareholder, which we entered into on March 14, 2018. To support our commercialization of TEGSEDI and AKCEA-TTR-L$_{Rx}$, Ionis purchased 10.7 million shares of our common stock for $200 million.

At June 30, 2018, we had working capital of $291.5 million compared to working capital of $178.4 million at December 31, 2017. Working capital increased in 2018 primarily due to the increase in our cash, cash equivalents and investments related to the sales of 10.7 million shares of our common stock to Ionis for $200.0 million as part of the TTR transaction noted above. As of June 30, 2018, our outstanding payable to Ionis was $27.1 million.

TEGSEDI is approved in the EU for the treatment of stage 1 or stage 2 polyneuropathy in adult patients with hATTR amyloidosis and is currently under regulatory review in the U.S. and Canada. We do not currently have any other drug marketing approvals and, therefore, we do not expect to generate significant revenue from drug sales unless and until we or our partners obtain additional regulatory approval for and commercialize TEGSEDI, WAYLIVRA or one of our other drugs in development. We anticipate that we will continue to incur losses for the foreseeable future, and losses may continue to increase as we develop, seek regulatory approval for, and begin to commercialize our pipeline drugs. We are subject to all of the risks incident in developing and commercializing new drugs and we may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business.

Future Funding Requirements

We expect to raise additional funding in the future to continue developing the drugs in our pipeline and to commercialize any approved drug, including expanding our commercial efforts for TEGSEDI and WAYLIVRA. We expect that our cash, cash equivalents and investments of $381.9 million as of June 30, 2018, will be sufficient to fund our operating expenses and capital expenditure requirements for at least the next 12 months from issuance of these financial statements. Until such time, if ever, as we can generate substantial product revenue, we may finance our cash needs through additional financing in the future through the issuance of our common stock, through other equity or debt financings or through collaborations or partnerships with other companies. In any event, we may not generate significant revenue from product sales prior to the use of our existing cash, cash equivalents and investments. We do not have any committed external source of funds. Additional capital may not be available on reasonable terms, if at all. To the extent that we raise additional capital through the sale of stock or convertible debt securities, the ownership interest of our stockholders will be diluted and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our common stockholders. Debt financing, if available, may involve agreements that include increased fixed payment obligations and covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures, declaring dividends, selling or licensing intellectual property rights and other operating restrictions that could adversely affect our ability to conduct our business. If we raise additional funds through collaborations or licensing arrangements with third parties, we may have to relinquish valuable rights to our drugs or grant licenses on terms that may not be favorable to us. If we cannot raise additional funds through stock offerings 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 commercialize our drugs even if we would otherwise prefer to develop and commercialize the drugs ourselves.

Our forecast of the period of time through which our financial resources will be adequate to support our operations involves risks and uncertainties, and actual results could vary as a result of a number of factors. We have based this estimate on assumptions that may prove to be wrong, and we could use our available capital resources sooner than we currently expect. The amount and timing of future funding requirements, both near- and long-term, will depend on many factors, including, but not limited to:

- the design, initiation, progress, size, timing, costs and results of our clinical and nonclinical studies;
- the outcome, timing and cost of regulatory approvals by the FDA and comparable foreign regulatory authorities, including the potential for the FDA or comparable foreign regulatory authorities to require that we perform more studies than, or evaluate clinical endpoints other than, those that we currently expect;
- the number and characteristics of drugs that we may pursue;
- our need to expand our development activities, including our need and ability to hire additional employees;
- the effect of competing technological and market developments;
- the cost of establishing sales, marketing, manufacturing and distribution capabilities for our drugs;
- our strategic collaborators' success in developing and commercializing our drugs;
- our need to add infrastructure, implement internal systems and hire additional employees to operate as a public company; and
- the revenue, if any, generated from commercial sales of our drugs for which we receive marketing authorization, which may be affected by market conditions, including obtaining coverage and adequate reimbursement of our drugs from third-party payors, including government programs and managed care organizations, and competition within the therapeutic class to which our drugs are assigned.

If we cannot expand our operations or otherwise capitalize on our business opportunities because we lack sufficient capital, our business, financial condition and results of operations could be materially adversely affected.

Contractual Obligations and Commitments

In April 2018, we entered into an operating lease agreement with MEPT Seaport 13 Stillings LLC, or MEPT, for 30,175 square feet of office space located in Boston, Massachusetts for our new corporate headquarters. The anticipated commencement date of the lease is August 15, 2018. The initial term of the lease is 123 months with one five-year renewal option. Future minimum annual lease payments under this lease are $0.8 million in 2018, $2.2 million in 2019, $2.3 million in 2020, $2.3 million in 2021, $2.3 million in 2022, and $14.2 million thereafter. MEPT will provide us with a three-month free rent period and a tenant improvement allowance up to $3.8 million. We are providing the Landlord with a letter of credit to secure our obligations under the lease in the initial amount of $2.4 million, to be reduced on the third anniversary and the fifth anniversary of the rent commencement date if we meet certain conditions set forth in the lease at each such time.

Also in April 2018, the stockholders other than Ionis and its affiliates approved the development, commercialization, collaboration and license agreement, or License Agreement, and a stock purchase agreement, or Ionis SPA, with Ionis, our majority shareholder, which we entered into on March 14, 2018. As part of the licensing transaction, we will be obligated to make milestone payments to Ionis in connection with the achievement of certain development, regulatory and commercialization events. These milestone payments include up to $110.0 million, if all TEGSEDI approval milestones are met; up to $145.0 million, if all AKCEA-TTR-L$_{Rx}$ milestones are met; and up to $1.3 billion, if all sales milestones for the combined products are met. We can elect to pay each milestone payment in cash or shares of our common stock and Ionis may require payment in shares of common stock. Subsequent to the achievement of the milestone event for aggregate worldwide annual net sales of $750 million for the products, all subsequent milestone payments must be paid in cash.

On July 11, 2018, we received marketing authorization, or MA, approval for TEGSEDI from the European Commission, or EC, for the treatment of stage 1 or stage 2 polyneuropathy in adult patients with hereditary transthyretin amyloidosis, or hATTR amyloidosis, in Europe, or EU. As a result of the MA approval in the EU, we issued on August 3, 2018, 1,597,571 of common stock shares to Ionis as payment of the $40.0 million regulatory milestone for TEGSEDI, increasing Ionis' ownership percentage to slightly above 75 percent.

Other than the above, there were no material changes to our contractual obligations and commitments described under Management's Discussion and Analysis of Financial Condition and Results of Operations in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017, as filed with the SEC on February 28, 2018.

Recently Issued Accounting Pronouncements

We describe the recently issued accounting pronouncements that apply to us in Note 2, *Summary of Significant Accounting Policies,* to our condensed consolidated financial statements.

Off-balance Sheet Arrangements

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

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Market risk represents the risk of loss that may impact our financial position due to adverse changes in financial market prices and rates. Our market risk exposure is primarily the result of fluctuations in interest rates and foreign exchange rates as well as, to a lesser extent, inflation.

Interest Rate Risk

We are exposed to changes in interest rates primarily from our investments in certain investments. We place our cash equivalents and investments with reputable financial institutions. We primarily invest our excess cash in commercial paper and debt instruments of the U.S. Treasury, financial institutions, corporations, and U.S. government agencies with strong credit ratings and an investment grade rating at or above A-1, P-1 or F-1 by Moody's, Standard & Poor's, or Fitch, respectively. As of June 30, 2018, we had cash, cash equivalents and investments of $381.9 million.

We have established guidelines relative to diversification and maturities that are designed to maintain safety and liquidity. We periodically review and modify these guidelines to maximize trends in yields and interest rates without compromising safety and liquidity. We typically hold our investments for the duration of the term of the respective instrument. We do not utilize derivative financial instruments, derivative commodity instruments or other market risk sensitive instruments, positions or transactions to manage exposure to interest rate changes. A hypothetical 10% change in interest rates during any of the periods presented would not have had a material impact on our financial statements.

Foreign Currency Exchange Risk

Our results of operations are subject to foreign currency exchange rate fluctuations as we have foreign subsidiaries with functional currencies other than the U.S. dollar. We translate our subsidiaries' functional currencies to our reporting currency the U.S. dollar. As a result, our financial position, results of operations and cash flows can be affected by market fluctuations in the foreign currencies to U.S. dollar exchange rate, which are difficult to predict. A hypothetical 10% change in foreign exchange rates during any of the periods presented would not have had a material impact on our consolidated financial statements. Our business strategy incorporates potentially significant international expansion, particularly with the MA approval of TEGSEDI™ (inotersen) in EU and anticipated approval of WAYLIVRA™ (volanesorsen), therefore we expect that the impact of foreign currency exchange rate fluctuations may become more substantial in the future.

Inflation Risk

We do not believe that inflation has had a material effect on our business, financial condition or results of operations. If our costs were to become subject to significant inflationary pressures, we may not be able to fully offset such higher costs through price increases. Our inability or failure to do so could harm our business, financial condition and results of operations.

ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures that are designed to ensure that information we are required to disclose in our Exchange Act reports is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure. We design and evaluate our disclosure controls and procedures recognizing that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance and not absolute assurance of achieving the desired control objectives.

As of our most recently completed fiscal year and as of the end of the period covered by this Quarterly Report on Form 10-Q, we carried out an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer. Based on our evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of June 30, 2018. There have been no significant changes in our internal controls or in other factors that could significantly affect internal controls subsequent to June 30, 2018.

We also performed an evaluation of any change in our internal control over financial reporting that occurred during our last fiscal quarter and that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting. We implemented internal controls to ensure we adequately evaluated our contracts and properly assessed the impact of the new revenue recognition accounting guidance we adopted on January 1, 2018 reflected in our financial statements. We conducted this evaluation under the supervision of and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer. That evaluation did not identify any significant changes in our internal control over financial reporting that occurred during our latest fiscal quarter and that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on Effectiveness of Controls

Our management, including our Chief Executive Officer and Chief Financial Officer, believes that our disclosure controls and procedures and internal control over financial reporting are designed to provide reasonable assurance of achieving their objectives and are effective at the reasonable assurance level. However, our management does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, have been detected. These inherent limitations include the realities that judgments in decision making can be faulty, and that breakdowns can occur because of a simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by management override of the controls. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

PART II — OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

From time to time, we may be involved in various claims and legal proceedings relating to claims arising out of our operations. We are not currently a party to any legal proceedings that, in the opinion of our management, are likely to have a material adverse effect on our business. Regardless of outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

ITEM 1A. RISK FACTORS

Investing in our securities involves a high degree of risk. You should consider carefully the following information about the risks described below, together with the other information contained in this report and in our other public filings in evaluating our business. If any of the following risks actually occur, our business could be materially harmed, and our financial condition and results of operations could be materially and adversely affected. As a result, the trading price of our securities could decline, and you might lose all or part of your investment. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently believe to be immaterial may also adversely affect our business. The risk factors set forth below with an asterisk (*) next to the title are new risk factors or risk factors containing changes, which may be material, from the risk factors previously disclosed in Item 1A of our Annual Report on Form 10-K for the fiscal year ended December 31, 2017.

Risks Related to Our Financial Condition and Need for Additional Capital

****We have a limited operating history and may never become profitable.***

Ionis Pharmaceuticals, Inc., or Ionis, incorporated us as a Delaware corporation in December 2014, and we have operated as an affiliate of Ionis since that time. As such, we have limited experience as a company, and no experience operating independently from Ionis, and have not yet demonstrated that we can successfully overcome many of the risks and uncertainties frequently encountered in new and rapidly evolving fields, particularly the biotechnology and pharmaceutical fields.

As a company, we have limited experience commercializing products. Our ability to generate substantial revenue and achieve profitability depends on our ability, alone or with strategic partners, to successfully develop our drugs, and obtain the regulatory approvals necessary to commercialize our drugs, including WAYLIVRA™ (volanesorsen), TEGSEDI, AKCEA-APO(a)-L$_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development. We anticipate receiving our first revenue from product sales in 2018. Even if we achieve profitability in the future, we may not sustain profitability in subsequent periods. Our ability to generate revenue from product sales depends heavily on our and our current and future strategic partners' success in:

- completing clinical development of WAYLIVRA for additional indications and nonclinical and clinical development of AKCEA-APO(a)-L $_{Rx}$, AKCEA-TTR-L$_{Rx}$, AKCEA-ANGPTL3-L$_{Rx}$ and AKCEA-APOCIII-L$_{Rx}$;
- seeking and obtaining regulatory and marketing authorization for our drugs, including WAYLIVRA, TEGSEDI, AKCEA-APO(a)-L $_{Rx}$ and our other drugs in development;
- managing supply and manufacturing relationships with third parties that can provide the amount and quality of products and services we need to continue to develop and, if approved, commercialize WAYLIVRA, TEGSEDI, AKCEA-APO(a)-L $_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development;
- launching and commercializing WAYLIVRA, TEGSEDI, AKCEA-ANGPTL3-L $_{Rx}$, AKCEA-TTR-L$_{Rx}$ by managing a sales, marketing and distribution infrastructure;
- launching and co-commercializing AKCEA-APO(a)-L$_{Rx}$ and AKCEA-APOCIII-L$_{Rx}$ through our collaboration with Novartis Pharma AG, or Novartis, under terms that we plan to negotiate with Novartis in the future;
- educating physicians about our target patient populations, including patients with hereditary TTR Amyloidosis (hATTR), patients with familial chylomicronemia syndrome, or FCS, and patients with familial partial lipodystrophy, or FPL;
- obtaining market acceptance of TEGSEDI, WAYLIVRA, AKCEA-APO(a)-L $_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development as viable treatment options;
- obtaining and maintaining adequate coverage and reimbursement from third-party payors for TEGSEDI, WAYLIVRA, AKCEA-APO(a)-L $_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development;
- addressing any competing technological and market developments;
- implementing additional internal systems and infrastructure, as needed, to ultimately operate without reliance on Ionis;
- negotiating favorable terms in any partnership, licensing or other arrangements into which we may enter;
- maintaining, protecting and expanding our portfolio of intellectual property rights, including patents, product trademarks and know-how;
- developing and commercializing TEGSEDI, WAYLIVRA, AKCEA-ANGPTL3-L $_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development without infringing others' intellectual property rights; and
- attracting, hiring and retaining qualified personnel.

We may not successfully develop any products, generate product revenue or achieve profitability. If we cannot achieve or maintain profitability, it would depress the market price of our common stock and could impair our ability to raise capital, expand our business, diversify our product offerings or continue our operations. If the market price of our common stock declined, you could lose all or part of your investment.

We have incurred losses since our inception.

Because drug development requires substantial lead-time and funding prior to commercialization, we have incurred expenses while generating limited revenue from our operating activities since our formation. Our net losses were $91.7 million and $84.2 million for the six months ended June 30, 2018 and June 30, 2017, respectively (as revised). As of June 30, 2018, we had an accumulated deficit of approximately $387.9 million. Most of the losses resulted from costs incurred in connection with our development programs and from general and administrative costs associated with our operations. We expect to incur additional operating losses for the foreseeable future, and these losses may increase if we cannot generate substantial revenue.

We will require substantial additional funding to achieve our goals. If we fail to obtain timely funding, we may need to curtail or abandon some of our programs.

All of our drugs are undergoing clinical studies. All of our drug programs, except TEGSEDI in the EU, will require additional nonclinical and/or clinical testing and/or marketing authorization prior to commercialization. We will need to spend significant additional resources to conduct these activities. Our expenses could increase beyond expectations if the U.S. Food and Drug Administration, or FDA, the European Medicines Agency, or EMA, or other regulatory authorities require us to perform clinical studies and other studies in addition to those that we currently anticipate. As of June 30, 2018, we had cash, cash equivalents and investments equal to $381.9 million. Our operating expenses were $129.2 million and $94.9 million for the six months ended June 30, 2018 and June 30, 2017, respectively.

Prior to our IPO, we funded our operating activities through a $100.0 million cash contribution we received from Ionis in 2015, $75.0 million we received from initiating our collaboration with Novartis and $106.0 million in drawdowns under our line of credit with Ionis. The line of credit converted to our common stock when we closed our IPO. We no longer have access to the line of credit following the closing of our IPO and we do not have any firm commitment from Ionis to fund our cash flow deficits or provide other direct or indirect financial assistance to us. Additionally, in July 2017 we received $182.3 million in net proceeds from our IPO including $25.0 million Ionis invested in our IPO and the Novartis concurrent private placement of $50 million. In April 2018, we received $200.0 million from the common stock we issued in connection with the licensing transaction with Ionis discussed in Note 5, *Development, Commercialization and License Agreements and Services Agreement with Ionis*, to our condensed consolidated financial statements included in this Form 10-Q. We expect that we will need to raise additional funding to continue developing the drugs in our pipeline and to seek regulatory approval for and to commercialize WAYLIVRA and other drugs in our pipeline.

We have received marketing authorization approval from the European Commission, or EC, for TEGSEDI for the treatment of stage 1 or stage 2 polyneuropathy in adult patients with hATTR, and we will incur significant costs to commercialize TEGSEDI. Even if we obtain marketing authorizations to sell WAYLIVRA, AKCEA-APO(a)-L$_{Rx}$ or AKCEA-TTR-L$_{Rx}$, we will incur significant costs to commercialize the approved product. Even if we generate revenue from the sale of any approved products, we may not become profitable and would need to obtain additional funding to continue operations.

Risks Related to Clinical Development, Regulatory Review and Approval of Our Drugs

If the results of clinical testing indicate that any of our drugs are not suitable for commercial use, we may need to abandon one or more of our drug development programs.

Drug discovery and development has inherent risks and the historical failure rate for drugs is high. Antisense drugs are a relatively new approach to therapeutics. If we cannot demonstrate that our drugs are safe and effective for human use in the intended indication, we may need to abandon one or more of our drug development programs.

If TEGSEDI, or any of our drugs in clinical studies, including WAYLIVRA, AKCEA-APO(a)-L$_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development, do not show sufficient safety and efficacy in patients with the targeted indication, it would negatively affect our development and commercialization goals for the drug and we would have expended significant resources with little or no benefit to us.

Even if our drugs are successful in preclinical and earlier-stage clinical studies, the drugs may not be successful in later-stage clinical studies.

Successful results in preclinical or initial clinical studies, including the results of earlier studies for our drugs in development, may not predict the results of subsequent clinical studies, including the Phase 3 study of WAYLIVRA for the treatment of FPL. There are a number of factors that could cause a clinical study to fail or be delayed, including:

- the clinical study may produce negative or inconclusive results;
- regulators may require that we hold, suspend or terminate clinical research for noncompliance with regulatory requirements;
- we, our partners, the FDA or foreign regulatory authorities could suspend or terminate a clinical study due to adverse side effects of a drug on people in the study;
- we or our partners may decide, or regulators may require us, to conduct additional preclinical testing or clinical studies;
- we or our partners may not identify, recruit and train suitable clinical investigators at a sufficient number of study sites;
- the institutional review board for a prospective site might withhold or delay its approval for the study;
- enrollment in our clinical studies may be slower than we anticipate;
- patients who enroll in the clinical study may later drop out due to adverse events, a perception they are not benefiting from participating in the study, fatigue with the clinical study process or personal issues;
- a clinical study site may deviate from the protocol for the study;
- the cost of our clinical studies may be greater than we anticipate;
- we or our partners may require additional capital to fund the clinical study; and
- the supply or quality of our drugs or other materials necessary to conduct the clinical studies may be insufficient, inadequate or delayed.

In addition, WAYLIVRA and AKCEA-APOCIII-L Rx have the same mechanism of action, TEGSEDI and AKCEA-TTR-LRx, also have the same mechanism of action and all of our current drugs, including WAYLIVRA, AKCEA-APO(a)-L Rx, AKCEA-ANGPTL3-LRx and AKCEA-APOCIII-LRx, are chemically similar to each other and the drugs Ionis and other companies are developing separately. As a result, a safety observation we, Ionis or other companies encounter with one of our or their drugs could have or be perceived by a regulatory authority to have an impact on a different drug we are developing. This could cause the FDA and other regulators to ask questions or take actions that could harm or delay our ability to develop and commercialize our drugs or increase our costs. For example, the FDA or other regulatory agencies could request, among other things, any of the following regarding one of our drugs: additional information or commitments before we can start or continue a clinical study, protocol amendments, increased safety monitoring, additional product labeling information, and post-approval commitments. Similarly, we have an ongoing Phase 3 study of WAYLIVRA in patients with FPL, an ongoing open label extension study of WAYLIVRA in patients with FCS and an open label extension study of TEGSEDI in patients with hATTR, and an early access program, or EAP, for both WAYLIVRA and TEGSEDI. Adverse events or results from these studies or the EAPs could negatively impact our pending or future marketing approval applications for WAYLIVRA and TEGSEDI in patients with FCS or hATTR amyloidosis or the commercial opportunity for WAYLIVRA or TEGSEDI.

Any failure or delay in the clinical studies for any of our drugs in development could reduce the commercial potential or viability of our drugs.

We may not have appropriately designed the planned and ongoing clinical studies for TEGSEDI, WAYLIVRA, AKCEA-APO(a)-L Rx, AKCEA-TTR-LRx and our other drugs in development to support submission of a marketing application to the FDA and foreign regulatory authorities or demonstrate safety or efficacy at the level required by the FDA and foreign regulatory authorities for product approval.

We recently completed a Phase 3 clinical program for WAYLIVRA for the treatment of FCS and have an ongoing Phase 3 study of WAYLIVRA in patients with FPL. We are also conducting or plan to conduct additional clinical studies for TEGSEDI, AKCEA-TTR-LRx AKCEA-APO(a)-LRx, AKCEA-ANGPTL3-LRx and AKCEA-APOCIII-LRx.

Even if we achieve positive results on the endpoints for these clinical studies or any future clinical studies, the FDA or foreign regulatory authorities may believe the clinical studies do not show the appropriate balance of safety and efficacy in the indication being sought or may interpret the data differently than we do, and deem the results insufficient to demonstrate the appropriate balance of safety and efficacy at the level required for product approval. For example, the FDA or foreign regulatory authorities could claim that we have not tested WAYLIVRA in a sufficient number of patients to demonstrate WAYLIVRA is safe and effective in patients with FCS or FPL to support an application for marketing authorization, or that we have not tested TEGSEDI in a sufficient number of patients to demonstrate TEGSEDI is safe and effective in patients with hATTR amyloidosis to support an application for marketing authorization. In such a case, we may need to conduct additional clinical studies before obtaining marketing authorization, which would be expensive and delay these development programs. These risks are more likely to occur since we are developing our drugs against therapeutic targets or to treat diseases in which there is little or no clinical experience. In addition, these risks may be more likely to occur for WAYLIVRA since there were some patients in the Phase 3 program that experienced serious platelet events (grade 4 thrombocytopenia), a condition in which the patient has very low platelet levels, and additional patients experienced other adverse events in the program, including patients who discontinued participation in the APPROACH study due to platelet count declines. We believe that the enhanced monitoring we have implemented to support early detection and management of these issues can help manage these safety issues so that patients can continue treatment. Since implementation of the enhanced monitoring, serious platelet events have been infrequent.

We may make modifications to the clinical study protocols or designs of our ongoing clinical studies that delay enrollment or completion of such clinical studies and could delay regulatory approval of WAYLIVRA and our other drugs in development. Any failure to obtain additional approvals for TEGSEDI or approval for WAYLIVRA, AKCEA-APO(a)-L Rx, AKCEA-TTR-LRx and our other drugs in development on the timeline that we currently anticipate, or at all, would have a material and adverse impact on our business, prospects, financial condition and results of operations and could cause our stock price to decline.

Clinical studies for either TEGSEDI, WAYLIVRA, AKCEA-APO(a)-L Rx, AKCEA-TTR-LRx or our other drugs may not demonstrate safety or efficacy at the level required by the FDA and foreign regulatory authorities for product approval.

The FDA and Health Canada are currently reviewing our application for regulatory approval for TEGSEDI. In addition, the FDA, EMA, and Health Canada are currently reviewing our application for regulatory approval for WAYLIVRA. We and Ionis intend to conduct clinical studies for AKCEA-TTR-LRx and may conduct further clinical studies for TEGSEDI.

Even if positive results on the endpoints for the clinical studies are achieved, the FDA or foreign regulatory authorities may believe the clinical studies do not show the appropriate balance of safety and efficacy in the indication being sought or may interpret the data differently than we do, and may deem the results insufficient to demonstrate the appropriate balance of safety and efficacy at the level required for product approval. For example, the FDA or foreign regulatory authorities could claim that we have not tested WAYLIVRA, TEGSEDI, AKCEA-APO(a)-L Rx or AKCEA-TTR-LRx in a sufficient number of patients to demonstrate that the drug is safe and effective in patients with hATTR amyloidosis or other indications to support an application for marketing authorization for the applicable indication. In such a case, we may need to conduct additional clinical studies before obtaining marketing authorization, which would be expensive and delay the development and commercialization of the drug.

Any failure to obtain additional approvals for TEGSEDI or approval for WAYLIVRA on the timeline that we currently anticipate, or at all, would have a material and adverse impact on our business, prospects, financial condition and results of operations and could cause our stock price to decline.

If we or our partners fail to obtain regulatory approval for our drugs, including WAYLIVRA, AKCEA-APO(a)-L Rx, AKCEA-TTR-LRx and our other drugs in development, or additional approvals for TEGSEDI, we or our partners cannot sell them in the applicable markets.

We cannot guarantee that any of our drugs, including WAYLIVRA, AKCEA-APO(a)-L Rx, AKCEA-TTR-LRx and our other drugs in development, will be safe and effective, or will be approved or receive additional approvals for commercialization. We and our partners must conduct time-consuming, extensive and costly clinical studies to demonstrate the safety and efficacy of each of our drugs, including WAYLIVRA, TEGSEDI, AKCEA-APO(a)-L Rx, AKCEA-TTR-LRx and our other drugs in development, before they can be approved, or receive additional approvals, for sale. We and our partners must conduct these studies in compliance with FDA regulations and with comparable regulations in other countries.

We or our partners may not obtain necessary regulatory approvals on a timely basis, if at all, for any of our drugs. It is possible that regulatory authorities will not approve TEGSEDI in additional markets or any of our other drugs, including WAYLIVRA, AKCEA-APO(a)-L Rx, AKCEA-TTR-LRx and our other drugs in development, for marketing. If the FDA or another regulatory authority believes that we or our partners have not sufficiently demonstrated the safety or efficacy of any of our drugs, including WAYLIVRA, TEGSEDI, AKCEA-APO(a)-L Rx, AKCEA-TTR-LRx and our other drugs in development, the authority will not approve the specific drug or will require additional studies, which can be time consuming and expensive and which will delay or harm our ability to successfully commercialize the drug. For example, since some patients in the Phase 3 program for WAYLIVRA experienced serious platelet events (grade 4 thrombocytopenia), a condition in which the patient has very low platelet levels, and additional patients experienced other adverse events in the program, some of whom discontinued participation in the studies, including patients who discontinued participation in the APPROACH study due to platelet count declines, the FDA or another regulatory authority may require us to conduct additional studies of WAYLIVRA before considering an application for marketing approval. We believe that the enhanced monitoring we have implemented to support early detection and management of these issues can help manage these safety issues so that patients can continue treatment. Since implementation of the enhanced monitoring, serious platelet events have been infrequent.

The FDA or other comparable foreign regulatory authorities can delay, limit or deny approval of a drug for many reasons, including:

- such authorities may disagree with the design or implementation of our clinical studies;
- we or our partners may be unable to demonstrate to the satisfaction of the FDA or other regulatory authorities that a drug is safe and effective for any indication;
- such authorities may not accept clinical data from studies conducted at clinical facilities that have deficient clinical practices or that are in countries where the standard of care is potentially different from the United States;
- we or our partners may be unable to demonstrate that our drug's clinical and other benefits outweigh its safety risks to support approval;
- such authorities may disagree with the interpretation of data from preclinical or clinical studies;
- such authorities may find deficiencies in the manufacturing processes or facilities of third-party manufacturers who manufacture clinical and commercial supplies for our drugs; and
- the approval policies or regulations of such authorities or their prior guidance to us or our partners during clinical development may significantly change in a manner rendering our clinical data insufficient for approval.

Failure to successfully develop WAYLIVRA, AKCEA-APO(a)-L Rx, AKCEA-TTR-LRx and our other drugs in development, or to receive marketing authorization for these drugs in important markets or delays in these authorizations would prevent or delay the commercial launch of the drug, and, as a result, would negatively affect our ability to generate revenue.

We may not be able to benefit from orphan drug designation for WAYLIVRA, TEGSEDI or any of our other drugs.

The FDA and EMA have granted orphan drug designation to WAYLIVRA for the treatment of patients with FCS. The EMA has granted orphan drug designation to WAYLIVRA for the treatment of patients with FPL and we are in the process of applying for orphan drug status for FPL in the United States. The FDA has granted TEGSEDI Orphan Drug Designation for the treatment of patients with polyneuropathy due to hereditary TTR amyloidosis (hATTR).

In the United States, under the Orphan Drug Act, the FDA may designate a drug as an orphan drug if it is intended to treat a rare disease or condition, which is generally defined as a patient population of fewer than 200,000 individuals in the United States. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process, but it can provide financial incentives, such as tax advantages and user-fee waivers, as well as longer regulatory exclusivity periods.

We may lose orphan drug exclusivity if the FDA determines that the request for designation was materially defective or if we cannot assure sufficient quantity of the applicable drug to meet the needs of patients with the rare disease or condition.

Even if we maintain orphan drug exclusivity for WAYLIVRA or TEGSEDI or obtain orphan drug exclusivity for our other drugs, the exclusivity may not effectively protect the drug from competition because regulatory authorities still may authorize different drugs for the same condition.

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

We will dedicate a substantial amount of our resources to commercialize TEGSEDI and support the continued development of AKCEA-TTR-L Rx. In addition, we are dedicating a substantial amount of our resources to develop and seek regulatory approval for WAYLIVRA to treat patients with FCS and FPL. As a result, we may forego or delay pursuit of opportunities with our other drugs or for other indications that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial drugs or profitable market opportunities. Our spending on current and future research and development programs and drugs for specific indications may not yield any commercially viable drugs.

Our drugs, including TEGSEDI, WAYLIVRA, AKCEA-APO(a)-L$_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development, could be subject to regulatory limitations following approval.

Following approval of a drug, we and our partners must comply with comprehensive government regulations regarding the manufacture, marketing and distribution of drug products. Promotional communications regarding prescription drugs must be consistent with the information in the product's approved labeling. We and our partners may not obtain the labeling claims necessary or desirable to successfully commercialize, if approved, our drug products, including WAYLIVRA, TEGSEDI, AKCEA-APO(a)-L$_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development.

The FDA and foreign regulatory authorities can impose significant restrictions on an approved drug product through the product label and on advertising, promotional and distribution activities.

In addition, when approved, the FDA or a foreign regulatory authority may condition approval on the performance of post-approval clinical studies or patient monitoring, which could be time consuming and expensive. If the results of such post-marketing studies are not satisfactory, the FDA or a foreign regulatory authority may withdraw marketing authorization or may condition continued marketing on commitments from us or our partners that may be expensive and/or time consuming to fulfill.

In addition, if we or others identify side effects after any of our drug products are on the market, if manufacturing problems occur subsequent to regulatory approval, or if we, our manufacturers or our partners fail to comply with regulatory requirements, we or our partners could be subject to:

- changes to the product label;
- restrictions on the marketing of a product;
- restrictions on product distribution;
- restrictions on such products' manufacturing processes;
- requirements to conduct post-marketing clinical studies;
- Untitled or Warning Letters;
- withdrawal of the products from the market;
- refusal to approve pending applications or supplements to approved applications that we submit;
- recall of products;
- fines, restitution or disgorgement of profits or revenue;
- suspension or withdrawal of regulatory approvals;
- refusal to permit the import or export of our products;
- product seizure;
- injunctions;
- restrictions on our ability to conduct clinical studies, including full or partial clinical holds on ongoing or planned clinical studies; or
- imposition of civil or criminal penalties.

Any one or a combination of these events could prevent us from achieving or maintaining market acceptance of the affected drug product or could substantially increase the costs and expenses of commercializing such drug product, which in turn could delay or prevent us from generating any revenue or profit from the sale of the drug product.

The development and commercialization of TEGSEDI and WAYLIVRA may place strain on our management team's time and attention and may divert our management team's attention from our other existing products.

Although we have personnel with experience commercializing drugs, we ourselves have limited experience commercializing products. During 2018, we plan to commercially launch TEGSEDI and, if regulatory approval is obtained, WAYLIVRA. The commercial launches of the products will require significant efforts and the devotion of substantial resources, as we will need to finalize regulatory submissions, manage the manufacturing of sufficient quantities of product to support long-term commercial sales and integrate, optimize or maintain, as applicable, the global sales, marketing, medical, for each of WAYLIVRA and TEGSEDI, and patient support infrastructure, which may place pressure on the management team's time and attention. These efforts may also divert the attention of the management team from our other business operations, such as the development or commercialization of our other pipeline products, including AKCEA-APO(a)-L$_{Rx}$, AKCEA-TTR-L$_{Rx}$, AKCEA-ANGPTL3-L$_{Rx}$ and AKCEA-APOCIII-L$_{Rx}$. As a result, our business, results of operations, financial condition and prospects for future growth could be adversely impacted and the market price of our common stock may decline.

Risks Related to Commercialization of Our Drugs

If we cannot effectively manage our marketing and sales capabilities or enter into agreements with third parties to market and sell our drug products, we may not generate product revenue.

We plan to commercialize TEGSEDI and, if approved, WAYLIVRA. To successfully commercialize TEGSEDI and WAYLIVRA, we must successfully manage our marketing, sales and distribution capabilities or make arrangements with third parties to perform these services. We may not be successful in doing so. To commercialize TEGSEDI and WAYLIVRA in the initial indications we plan to pursue, we will need to optimize and maintain specialty sales forces in each global region we expect to market TEGSEDI and WAYLIVRA, supported by case managers, reimbursement specialists, partnerships with specialty pharmacies, injection training, routine platelet and renal monitoring and a medical affairs team. We may seek to further penetrate markets by expanding our sales forces or through strategic partnerships with other pharmaceutical or biotechnology companies or third-party sales organizations.

Even though certain members of our management team and other employees have significant experience commercializing drug products, as a company we have limited experience marketing, selling or distributing drug products, and there are significant risks involved in building and managing a commercial infrastructure. It will be expensive and time consuming for us to maintain our own sales forces and related compliance protocols to market TEGSEDI and WAYLIVRA. We may never successfully optimize or manage this capability and any failure could delay or preclude the TEGSEDI and WAYLIVRA launch. We and our partners, if any, will have to compete with other companies to recruit, hire, train, manage and retain marketing and sales personnel.

We have incurred expenses preparing to launch TEGSEDI to integrate and manage the marketing and sales infrastructure. If regulatory requirements or other factors cause a delay in the commercial launch of TEGSEDI in important markets, we would incur additional expenses for having invested in these capabilities earlier than required and prior to realizing any revenue from sales of TEGSEDI. Our sales force and marketing teams may not successfully commercialize TEGSEDI.

We will incur expenses prior to the launch of WAYLIVRA to integrate and manage the marketing and sales infrastructure. If regulatory requirements or other factors cause a delay in the commercial launch of WAYLIVRA, we would incur additional expenses for having invested in these capabilities earlier than required and prior to realizing any revenue from sales of WAYLIVRA. Our sales force and marketing teams may not successfully commercialize WAYLIVRA.

To the extent we decide to rely on third parties to commercialize TEGSEDI or WAYLIVRA in a particular geographic market, we may receive less revenue than if we commercialized TEGSEDI or WAYLIVRA by ourselves. For example, in August 2018, we granted PTC Therapeutics International Limited the exclusive right to commercialize TEGSEDI and WAYLIVRA in Latin America and the Caribbean, and will rely on PTC to commercialize TEGSEDI and WAYLIVRA in those geographic markets. Further we would have less control over the sales efforts of any other third parties, including PTC, involved in commercializing TEGSEDI or WAYLIVRA.

If we cannot effectively build and manage our distribution, medical affairs, market access, marketing and sales infrastructure, or find a suitable third party to perform such functions, the commercial launch and sales of TEGSEDI and WAYLIVRA may be delayed, less successful or precluded. Such events may result in decreased sales and lower revenue, which could have a material adverse effect on our business, prospects, financial condition and results of operations.

We plan to rely on third-party specialty channels to distribute TEGSEDI, WAYLIVRA and our other drugs to patients. If we cannot effectively manage this distribution process, it could harm or delay the commercial launch and sales of TEGSEDI, WAYLIVRA and our other drugs in development.

We and our strategic partners have contracted with, and will rely on, third-party specialty pharmacies to distribute TEGSEDI, WAYLIVRA, and our other drugs to patients. A specialty pharmacy is a pharmacy that specializes in dispensing medications for complex or chronic conditions, a process that requires a high level of patient education and ongoing management. Our management team will need to devote a significant amount of its attention to optimizing and managing this distribution network. If we cannot effectively optimize and manage this distribution process, the commercial launch and sales of TEGSEDI, WAYLIVRA, AKCEA-APO(a)-L_{Rx} and AKCEA-TTR-L_{Rx} will be delayed or less successful, which would harm our results of operations.

In addition, the use of specialty pharmacies involves certain risks, including, but not limited to, risks that these organizations will:

- not provide us with accurate or timely information regarding their inventories, the number of patients who are using our drugs or complaints regarding our drugs;
- not effectively sell or support TEGSEDI, WAYLIVRA, AKCEA-APO(a)-L_{Rx}, AKCEA-TTR-L_{Rx} or our other drugs;
- reduce or discontinue their efforts to sell or support TEGSEDI, WAYLIVRA, AKCEA-APO(a)-L_{Rx}, AKCEA-TTR-L_{Rx} or our other drugs;
- not devote the resources necessary to sell TEGSEDI, WAYLIVRA, AKCEA-APO(a)-L_{Rx}, AKCEA-TTR-L_{Rx} or our other drugs in the volumes and within the time frames that we expect;
- not satisfy financial obligations to us or others; or
- cease operations.

Any such events may result in decreased sales and lower revenue, which could have a material adverse effect on our business, prospects, financial condition and results of operations.

If the market does not accept our drugs, including TEGSEDI, WAYLIVRA, AKCEA-TTR-L_{Rx} and our other drugs in development, we are not likely to generate substantial product revenue or become profitable.

Even though we have obtained marketing authorization approval from the European Commission (EC) for TEGSEDI, and if we or our strategic partners obtain a marketing authorization for WAYLIVRA, AKCEA-TTR-L_{Rx} and our other drugs in development, our success will depend upon the medical community, patients and third-party payors accepting our drugs as medically useful, cost-effective, safe and convenient. Even if the FDA or foreign regulatory authorities authorize our drugs for commercialization, doctors may not prescribe our drugs to treat patients. We and our partners may not successfully commercialize additional drugs.

Additionally, in many of the markets where we or our partners may sell our drugs in the future, if we cannot agree with the government or other third-party payors regarding the price we can charge for our drugs, then we may not be able to sell our drugs in that market. Similarly, cost control initiatives by governments or third-party payors could decrease the price received for our drugs or increase patient coinsurance to a level that makes commercializing TEGSEDI, WAYLIVRA, AKCEA-APO(a)-L_{Rx}, AKCEA-TTR-L_{Rx} and our other drugs in development economically unviable.

The degree of market acceptance for TEGSEDI, WAYLIVRA, AKCEA-APO(a)-L Rx, AKCEA-TTR-LRx and our other drugs in development depends upon a number of factors, including the:

- receipt and scope of marketing authorizations;
- establishment and demonstration in the medical and patient community of the efficacy and safety of our drugs and their potential advantages over competing products;
- cost and effectiveness of our drugs compared to other available therapies;
- patient convenience of the dosing regimen for our drugs; and
- reimbursement by government and third-party payors.

Based on the profile of our drugs, physicians, patients, patient advocates, payors or the medical community in general may not accept and/or use any drugs that we may develop. For example, in the clinical studies with WAYLIVRA and TEGSEDI, declines in platelet counts were observed in many patients and some patients discontinued the study because of platelet declines. Therefore, we expect WAYLIVRA's and TEGSEDI's product labels will require periodic platelet monitoring, which could negatively affect our ability to attract and retain patients for WAYLIVRA and TEGSEDI. We believe that the enhanced monitoring we have implemented to support early detection and management of these issues can help manage these safety issues so that patients can continue treatment. Since implementation of the enhanced monitoring, serious platelet events have been infrequent. While we believe we can better maintain patients on WAYLIVRA and TEGSEDI through our patient-centric commercial approach where we plan to have greater involvement with physicians and patients, if we cannot effectively maintain patients on WAYLIVRA and TEGSEDI, we may not be able to generate substantial revenue from WAYLIVRA and TEGSEDI sales.

The patient populations suffering from FCS and FPL are small and have not been established with precision. If the actual number of patients is smaller than we estimate, or if we cannot raise awareness of these diseases and diagnosis is not improved, our revenue and ability to achieve profitability may be adversely affected.

We estimate there are 3,000 to 5,000 FCS patients and an additional 3,000 to 5,000 FPL patients globally. Our estimates of the sizes of the patient populations are based on published studies as well as internal analyses. If the results of these studies or our analyses of them do not accurately reflect the number of patients with FCS and FPL, our assessment of the market potential for WAYLIVRA may be inaccurate, making it difficult or impossible for us to meet our revenue goals, or to obtain and maintain profitability. In addition, as is the case with most orphan diseases, if we cannot successfully raise awareness of these diseases and improve diagnosis, it will be more difficult or impossible to achieve profitability.

In addition, since the patient populations for FCS and FPL are small, the per-patient drug pricing must be high in order to recover our development and manufacturing costs, fund adequate patient support programs and achieve profitability. For these initial indications, we may not maintain or obtain sufficient sales volume at a price high enough to justify our product development efforts and our sales and marketing and manufacturing expenses.

The patient population suffering from hATTR amyloidosis is small and has not been established with precision. If the actual number of patients is smaller than we estimate, or if we cannot raise awareness of the disease and diagnosis is not improved, our revenue and ability to achieve profitability from either TEGSEDI or AKCEA-TTR-L*Rx *may be adversely affected.

Our estimate of the sizes of the patient populations are based on published studies as well as internal analyses. If the results of these studies or our analyses of them do not accurately reflect the number of patients with hATTR amyloidosis, our assessment of the market potential for either TEGSEDI or AKCEA-TTR-LRx may be inaccurate, making it difficult or impossible for us to meet our revenue goals, or to obtain and maintain profitability. In addition, as is the case with most orphan diseases, if we cannot successfully raise awareness of these diseases and improve diagnosis, it will be more difficult or impossible to achieve profitability. For these initial indications, we may not maintain or obtain sufficient sales volume at a price high enough to justify our product development efforts and our sales and marketing and manufacturing expenses.

If we or our partners fail to compete effectively, WAYLIVRA, TEGSEDI and our other drugs in development will not contribute significant revenue.

Our competitors engage in drug discovery throughout the world, are numerous and include, among others, major pharmaceutical companies and specialized biopharmaceutical firms. Our competitors may succeed in developing drugs that are:

- safer than our drugs;
- more effective than our drugs;
- priced lower than our drugs;
- reimbursed more favorably by government and other third-party payors than our drugs; or
- more convenient to use than our drugs.

These competitive developments could make our drugs, including WAYLIVRA, TEGSEDI, AKCEA-APO(a)-L Rx, AKCEA-TTR-LRx and our other drugs in development, obsolete or non-competitive. Further, all of our drugs are delivered by injection, which may render them less attractive to patients than non-injectable products offered by our current or future competitors.

Many of our competitors have substantially greater financial, technical and human resources than we do. In addition, many of these competitors have significantly greater experience than we do in conducting preclinical testing and human clinical studies, in obtaining FDA and other regulatory authorizations and in commercializing pharmaceutical products. Accordingly, our competitors may succeed in obtaining regulatory authorization for products earlier than we do. Marketing and sales capability is another factor relevant to the competitive position of our drugs, and many of our competitors will have greater marketing and sales capabilities than our capabilities.

There are several pharmaceutical and biotechnology companies engaged in the development or commercialization of products against targets that are also targets of drugs in our development pipeline. For example, if approved, WAYLIVRA could face competition from drugs like metreleptin. Metreleptin, produced by Novelion Therapeutics, Inc., is currently approved for use in generalized lipodystrophy patients. In September 2016, Arrowhead Pharmaceuticals, Inc. and Amgen Inc. announced a license and collaboration for development of Arrowhead's preclinical program which uses an RNAi conjugated with a GalNAc for the same target as AKCEA-APO(a)-L$_{Rx}$. AKCEA-APOCIII-L$_{Rx}$ may compete with gemcabene, an oral small molecule that reduces apoC-III, that Gemphire Therapeutics, Inc. is developing to treat patients with triglycerides above 500 mg/dL. As an additional example, TEGSEDI could face competition from drugs like patisiran and ALN-TTRsc02 in development by Alnylam, tafamidis commercialized in Europe and in development by Pfizer and tolcapone in development by SOM Biotech, the generic drug diflunisal, and AG10 in development by Eidos. AG10, which recently began its Phase 2 dose-finding study in May, is an orally administered TTR tetramer stabilizer for ATTR amyloidosis. If WAYLIVRA, TEGSEDI or the other drugs in our pipeline cannot compete effectively with these and other products with common or similar indications to the drugs in our pipeline, we may not be able to generate substantial revenue from our product sales.

If government or other third-party payors fail to provide adequate coverage and payment rates for TEGSEDI, WAYLIVRA, AKCEA-APO(a)-L$_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development, our revenue and prospects for profitability will be limited.

In both domestic and foreign markets, sales of our future products will depend in part upon the availability of coverage and reimbursement from third-party payors. The majority of patients in the United States who would fit within our target patient populations for our drugs have their healthcare supported by a combination of Medicare coverage, other government health programs such as Medicaid, managed care providers, private health insurers and other organizations. Coverage decisions may depend upon clinical and economic standards that disfavor new drug products when more established or lower cost therapeutic alternatives are already available or subsequently become available. Assuming coverage is approved, the resulting reimbursement payment rates might not be enough to make our drugs affordable. Accordingly, TEGSEDI and, if approved, WAYLIVRA, AKCEA-APO(a)-L$_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development, will face competition from other therapies and drugs for limited financial resources. We may need to conduct post-marketing studies to demonstrate the cost-effectiveness of any future products to satisfy third-party payors. These studies might require us to commit a significant amount of management time and financial and other resources. Third-party payors may never consider our future products as cost-effective. Adequate third-party coverage and reimbursement might not be available to enable us to maintain price levels sufficient to realize an appropriate return on investment in product development.

Third-party payors, whether foreign or domestic, or governmental or commercial, are developing increasingly sophisticated methods of controlling healthcare costs. In addition, in the United States, no uniform policy of coverage and reimbursement for drug products exists among third-party payors. Therefore, coverage and reimbursement for drug products can differ significantly from payor to payor. Further, we believe that future coverage and reimbursement will likely be subject to increased restrictions both in the United States and in international markets. For example, in the United States, recent health reform measures have resulted in reductions in Medicare and other healthcare funding, and there have been several recent U.S. Congressional inquiries and proposed federal legislation designed to, among other things, reform government program reimbursement methodologies for drug products and bring more transparency to drug pricing. Third-party coverage and reimbursement for our products or drugs may not be available or adequate in either the United States or international markets, which would negatively affect the potential commercial success of our products, our revenue and our profits.

If we are found in violation of federal or state "fraud and abuse" laws or other healthcare laws and regulations, we may be required to pay a penalty and/or be suspended from participation in federal or state healthcare programs, which may adversely affect our business, financial condition and results of operation.

We may be subject to various federal and state laws pertaining to healthcare "fraud and abuse," including anti-kickback laws and false claims laws. Anti-kickback laws, among other things, make it illegal for a prescription drug manufacturer to pay, or offer to pay, a healthcare provider to refer, purchase or prescribe a particular drug. Due to the breadth of the statutory and regulatory provisions, it is possible that government authorities and others might challenge our practices under anti-kickback or other fraud and abuse laws. Moreover, recent healthcare reform legislation has strengthened these laws. In addition, false claims laws prohibit anyone from knowingly and willingly presenting, or causing to be presented for payment, to government third-party payors, including Medicare and Medicaid claims for reimbursed drugs that are false or fraudulent, claims for items or services not provided as claimed, or claims for medically unnecessary items or services. Our activities relating to the sale and marketing of our products may be subject to scrutiny under these laws. If we violated fraud and abuse laws, we could face a combination of:

- criminal and civil sanctions, including fines and civil monetary penalties;
- the possibility of exclusion from federal healthcare programs, including Medicare and Medicaid; and
- corporate integrity agreements, which could impose rigorous operational and monitoring requirements on us.

Given the significant penalties and fines that the government can impose on companies and individuals if convicted, allegations of violations often result in settlements even if the company or individual being investigated admits no wrongdoing. Settlements often include significant civil sanctions, including fines and civil monetary penalties, and corporate integrity agreements. If the government were to allege or convict us or our executive officers of violating these laws, our business could be harmed. In addition, private individuals may bring similar actions under the False Claims Act. Our activities could be subject to challenge for the reasons discussed above and due to the broad scope of these laws and the increasing focus on these laws by law enforcement authorities. To the extent we have access to protected health information we could be subject to federal and state health information privacy and security laws, including without limitation, the Health Insurance Portability and Accountability Act of 1996, or HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, which governs the conduct of certain electronic healthcare transactions and protects the security and privacy of protected health information. State health information privacy and security laws in certain circumstances are more stringent than HIPAA and many of the state laws differ from each other in significant ways and may not have the same effect, thus complicating compliance. Our failure to comply with applicable federal and state health information privacy and security laws could subject us to significant fines and multi-year corrective action plans. Once we have a commercialized drug in the U.S., we will be required to report annually to Centers for Medicare and Medicaid Services certain information related to payments and other transfers of value we may provide to physicians and teaching hospitals. Further, an increasing number of state laws require manufacturers to make reports to states on pricing and marketing information. Many of these laws are unclear as to what is required to comply with the laws. Given the lack of clarity in laws and their implementation, our reporting actions could be subject to the penalty provisions of the pertinent state authorities.

Similar rigid restrictions related to anti-kickbacks and promoting and marketing medicinal products apply in the European Union and other countries. Authorities in these countries strictly enforce these restrictions. Even in those countries where we will not be directly responsible for promoting and marketing our products, inappropriate activity by any of our international commercialization partners we may have could harm us.

Risks Related to Dependence on Third Parties

We plan to substantially depend on our collaboration with Novartis to develop and commercialize AKCEA-APO(a)-L$_{Rx}$ and AKCEA-APOCIII-L$_{Rx}$.

We have granted Novartis an exclusive option to exclusively license each of AKCEA-APO(a)-L$_{Rx}$ and AKCEA-APOCIII-L$_{Rx}$ pursuant to our strategic collaboration, option and license agreement with Novartis. We plan to substantially depend on Novartis to further develop and commercialize these drugs. We initiated this collaboration primarily to have Novartis:

- conduct the cardiovascular outcome studies that are likely to be required for approval of AKCEA-APO(a)-L$_{Rx}$ and AKCEA-APOCIII-L$_{Rx}$;
- seek and obtain regulatory approvals for AKCEA-APO(a)-L$_{Rx}$ and AKCEA-APOCIII-L$_{Rx}$; and
- globally commercialize AKCEA-APO(a)-L$_{Rx}$ and AKCEA-APOCIII-L$_{Rx}$.

If Novartis exercises its option to license one or both of these drugs, we would rely on Novartis to further develop, obtain regulatory approvals for, and commercialize the licensed drug. In general, we cannot control the amount and timing of resources that Novartis devotes to our strategic collaboration. If Novartis fails to use commercially reasonable efforts to further develop, obtain regulatory approvals for, or commercialize these drugs, or if Novartis' efforts are not effective, our business may be negatively affected. Novartis could pursue other technologies or develop other drugs either on its own or in collaboration with others to treat the same diseases as we and Novartis plan to treat with AKCEA-APO(a)-L$_{Rx}$ or AKCEA-APOCIII-L$_{Rx}$. Novartis could pursue these technologies and develop these other drugs at the same time as it is developing or commercializing AKCEA-APO(a)-L$_{Rx}$ or AKCEA-APOCIII-L$_{Rx}$, and Novartis is not required to inform us of such activities.

Our strategic collaboration with Novartis may not continue for various reasons. Novartis can terminate our agreement at any time and is under no obligation to exercise the options we granted them. If Novartis does not exercise its option, or following option exercise stops developing or commercializing a drug, we will have to seek additional sources for funding and may have to delay or reduce our development and commercialization plans for AKCEA-APO(a)-L$_{Rx}$ or AKCEA-APOCIII-L$_{Rx}$.

In addition, if Novartis exercises its option to license AKCEA-APO(a)-L$_{Rx}$ or AKCEA-APOCIII-L$_{Rx}$, Novartis would be responsible for the long-term supply of drug substance and finished drug product for the licensed drug.

Our strategic collaboration with Novartis may not result in the successful commercialization of AKCEA-APO(a)-L$_{Rx}$ or AKCEA-APOCIII-L$_{Rx}$. If Novartis does not successfully develop, manufacture or commercialize AKCEA-APO(a)-L$_{Rx}$ or AKCEA-APOCIII-L$_{Rx}$, we may receive limited or no revenues for these drugs.

****We plan to substantially depend on our collaboration with PTC Therapeutics to commercialize TEGSEDI and WAYLIVRA in Latin America and the Caribbean.***

In August 2018, we granted PTC Therapeutics International Limited the exclusive right to commercialize TEGSEDI and WAYLIVRA in Latin America and the Caribbean. We plan to substantially depend on PTC to commercialize these drugs in those geographic markets.

In general, we cannot control the amount and timing of resources that PTC devotes to our strategic collaboration. If PTC fails to use commercially reasonable efforts to obtain regulatory approvals for, or commercialize these drugs, or if PTC's efforts are not effective, our business may be negatively affected. PTC could pursue other technologies or develop other drugs either on its own or in collaboration with others to treat the same diseases as we and PTC plan to treat with TEGSEDI and WAYLIVRA. PTC could pursue these technologies and develop these other drugs at the same time as it is developing or commercializing TEGSEDI and WAYLIVRA, and PTC is not required to inform us of such activities.

Our strategic collaboration with PTC may not continue for various reasons. If PTC stops commercializing a drug, we will have to seek additional sources for funding and may have to delay or reduce our commercialization plans for TEGSEDI and WAYLIVRA in Latin America and the Caribbean.

Our strategic collaboration with PTC may not result in the successful commercialization of TEGSEDI or WAYLIVRA in Latin America or the Caribbean. If PTC does not successfully commercialize TEGSEDI or WAYLIVRA, we may receive limited or no revenues for these drugs in Latin America or the Caribbean.

AKCEA-APOCIII-L$_{Rx}$ and AKCEA-ANGPTL3-L$_{Rx}$ may compete with WAYLIVRA, which could reduce our expected revenues for WAYLIVRA.

WAYLIVRA and AKCEA-APOCIII-L$_{Rx}$ both inhibit the production of the same protein. We believe the enhancements we incorporated into AKCEA-APOCIII-L$_{Rx}$ can provide greater patient convenience by allowing for significantly lower doses and less frequent administration compared to WAYLIVRA. As such, if Novartis exercises its option and successfully commercializes AKCEA-APOCIII-L$_{Rx}$ while we are commercializing WAYLIVRA, to the extent physicians and patients elect to use AKCEA-APOCIII-L$_{Rx}$ instead of WAYLIVRA, it will reduce the revenue we derive from WAYLIVRA. In addition, while AKCEA-ANGPTL3-L$_{Rx}$ and WAYLIVRA use different mechanisms of action, if AKCEA-ANGPTL3-L$_{Rx}$ can effectively lower triglyceride levels in FCS patients, it may likewise reduce the revenue we derive from WAYLIVRA.

If we cannot manufacture our drugs or contract with a third party to manufacture our drugs at costs that allow us to charge competitive prices to buyers, we will not be able to operate profitably.

To successfully commercialize TEGSEDI and, if approved, WAYLIVRA, AKCEA-APO(a)-L $_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development, we will need to optimize and manage large-scale commercial manufacturing capabilities either on our own or through a third-party manufacturer. In addition, as our drug development pipeline matures, we will have a greater need for clinical study and commercial manufacturing capacity. We have no direct experience manufacturing pharmaceutical products of the chemical class represented by our drugs, called oligonucleotides, on a commercial scale for the systemic administration of a drug. We currently rely and expect to rely for the foreseeable future on Ionis' manufacturing capacity and efficiency and the capacity and efficiency of third parties to produce our oligonucleotide drugs, and our business could be negatively affected if Ionis and these third parties ceased to provide us with this capability for any reason. In addition, there are a small number of suppliers for certain raw materials that we use to manufacture our drugs, and some of these suppliers will need to increase their scale of production to meet our projected needs for commercial manufacturing. Further, if we cannot continue to acquire raw materials from these suppliers on commercially reasonable terms or at all, we may be required to find alternative suppliers, which could be expensive and time consuming and negatively affect our ability to develop or commercialize our drugs in a timely manner or at all. We may not be able to manufacture our drugs at a cost or in quantities necessary to make commercially successful products.

We do not have long-term supply agreements for our drugs. We cannot guarantee that we will have a steady supply of drug to complete clinical studies, make registration batches for approval or satisfy market demand if commercialized at prices that are commercially acceptable. In addition, if we need to change manufacturers for any reason, we will need to verify that the new manufacturer maintains facilities and procedures that comply with quality standards and with all applicable regulations and guidelines. The delays associated with verifying a new manufacturer could negatively affect our ability to develop drugs in a timely manner or within budget.

Also, manufacturers must adhere to the FDA's current Good Manufacturing Practices regulations and similar regulations in foreign countries, which the applicable regulatory authorities enforce through facilities inspection programs. Our contract manufacturers may not comply or maintain compliance with Good Manufacturing Practices, or similar foreign regulations. Non-compliance could significantly delay or prevent receipt of marketing authorization for our drugs, including authorizations for WAYLIVRA, TEGSEDI, AKCEA-APO(a)-L $_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development, or result in enforcement action after authorization that could limit the commercial success of our drugs, including WAYLIVRA, TEGSEDI, AKCEA-APO(a)-L $_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development.

We depend on Ionis and third parties to conduct our clinical studies for our drugs and any failure of those parties to fulfill their obligations could adversely affect our development and commercialization plans.

We depend on Ionis and independent clinical investigators, contract research organizations and other third-party service providers to conduct the clinical studies for our drugs and expect to continue to do so in the future. For example, we use clinical research organizations for the clinical studies for WAYLIVRA, AKCEA-APO(a)-L$_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development. We rely heavily on these parties for successful execution of our clinical studies, but do not control many aspects of their activities. For example, the investigators are not our employees. However, we are responsible for ensuring that these third parties conduct each of our clinical studies in accordance with the general investigational plan, approved protocols for the study and applicable regulations. Ionis and third parties may not complete activities on schedule or may not conduct our clinical studies in accordance with regulatory requirements or our stated protocols. The failure of these parties to carry out their obligations or a termination of our relationship with these third parties could delay or prevent the development, marketing authorization and commercialization of our drugs, including authorizations for WAYLIVRA, AKCEA-APO(a)-L$_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development.

We may seek to form additional partnerships in the future with respect to WAYLIVRA, and our other drugs in development, and we may not realize the benefits of such partnerships.

Although we intend to develop and commercialize WAYLIVRA for patients with FCS and FPL ourselves, we may form partnerships, create joint ventures or collaborations or enter into licensing arrangements with third parties for the development and commercialization of our drugs in development. For example, we have granted PTC an exclusive license to commercialize WAYLIVRA in Latin America and the Caribbean. We face significant competition in seeking appropriate strategic partners and the negotiation process is time-consuming and complex. Any delays in entering into new strategic partnership agreements related to our drugs could delay the development and commercialization of our drugs and reduce their competitiveness even if they reach the market. Moreover, we may not be successful in our efforts to establish other strategic partnerships or other collaborative arrangements for any additional drugs because the potential partner may consider that our development pipeline is not advanced enough to justify a collaborative effort, or that WAYLIVRA and our other drugs in development do not have the requisite potential to demonstrate safety and efficacy in the target populations in other geographic markets. In addition, we will need to mutually agree with Ionis on the terms of any additional sublicenses to a third party for WAYLIVRA and our other drugs in development. If we cannot mutually agree on terms for a sublicense to a third party or if Ionis does not agree to a sublicense at all, it could delay our ability to develop and commercialize WAYLIVRA and our other drugs in development. Even if we are successful in establishing such a strategic partnership or collaboration, we cannot be certain that, following such a strategic transaction or collaboration, we will be able to progress the development and commercialization of the applicable drugs as envisioned, or that we will achieve the revenue that would justify such transaction. If we do not accurately evaluate the commercial potential or target market for a particular drug, we may relinquish valuable rights to that drug through future collaboration, licensing or other arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights.

Risks Related to Our Relationship with Ionis

Ionis controls the direction of our business, and the concentrated ownership of our common stock will prevent you and other stockholders from influencing significant decisions.

After the issuance of 1,597,571 additional shares of our common stock to Ionis in connection with the achievement of the TEGSEDI regulatory milestone, Ionis owns 65,712,116 shares of our common stock, or approximately 75%, of the economic interest and voting power of our outstanding common stock, which ownership will be expected to increase further if we achieve certain milestone events and pay the associated milestone payment in shares of common stock pursuant to the payment election. As long as Ionis beneficially controls a majority of the voting power of our outstanding common stock, it will generally be able to determine the outcome of all corporate actions requiring stockholder approval, including the election and removal of directors. Even if Ionis were to control less than a majority of the voting power of our outstanding common stock, it may influence the outcome of such corporate actions so long as it owns a significant portion of our common stock. If Ionis continues to hold its shares of our common stock, it could remain our controlling stockholder for an extended period of time or indefinitely.

The licensing transaction with Ionis and the common stock issuance in connection with the achievement of the TEGSEDI regulatory milestone has increased Ionis' ownership percentage, and this increase, along with Ionis' increased reliance on Akcea as a commercialization partner, given that Akcea could now be commercializing at least two Ionis-developed products (WAYLIVRA and TEGSEDI), may increase the length of time during which Ionis will control us. As a general matter, the TEGSEDI license agreement and the related Investor Rights Agreement increased Ionis' control over our affairs. In addition, our TEGSEDI licensing agreement requires Ionis' consent to the budget related to the commercialization of TEGSEDI and AKCEA-TTR-LRx.

Ionis' interests may not be the same as, or may conflict with, the interests of our other stockholders. You will not be able to affect the outcome of any stockholder vote while Ionis controls the majority of the voting power of our outstanding common stock. As a result, Ionis can control, directly or indirectly and subject to applicable law, all matters affecting us, including:

- any determination with respect to our business strategy and policies, including the appointment and removal of officers and directors;
- any determinations with respect to mergers, business combinations or disposition of assets;
- our financing and dividend policy;
- compensation and benefit programs and other human resources policy decisions;
- termination of, changes to or determinations under our existing license agreements and services agreement with Ionis;
- changes to any other agreements that may adversely affect us; and
- determinations with respect to our tax returns.

Because Ionis' interests may differ from ours or yours, actions that Ionis takes with respect to us, as our controlling stockholder, may not be favorable to us or you.

As a "controlled company" under the marketplace rules of the Nasdaq Stock Market, we may rely on exemptions from certain corporate governance requirements that provide protection to stockholders of companies that are subject to such requirements.

Ionis beneficially owns more than 50% of the voting power of our outstanding common stock. As a result, we are a "controlled company" under the marketplace rules of the Nasdaq Stock Market, or Nasdaq, and eligible to rely on exemptions from Nasdaq corporate governance requirements generally obligating listed companies to maintain:

- A board of directors having a majority of independent directors;
- A compensation committee composed entirely of independent directors that approves the compensation payable to the company's chief executive officer and other executive officers; and
- A nominating committee composed entirely of independent directors that nominates candidates for election to the board of directors, or that recommends such candidates for nomination by the board of directors (or obligating the listed company to cause a majority of the board's independent directors to exercise this oversight of director nominations).

Currently, a majority of our board is made up of independent directors. As a controlled company, we have and in the future may avail ourselves of some of these exemptions. Accordingly, our stockholders may not have the same protections afforded to stockholders of companies that are subject to the Nasdaq corporate governance requirements described above.

If Ionis sells a controlling interest in our company to a third party in a private transaction, you may not realize a change of control premium on shares of our common stock, and we may become subject to the control of a presently unknown third party.

Ionis owns a significant equity interest in our company. This means that Ionis could choose to sell some or all of its shares of our common stock in a privately negotiated transaction, which, if sufficient in size, could result in a change of control of our company.

Ionis' ability to privately sell its shares of our common stock, with no requirement for a concurrent offer to be made to acquire your shares of our common stock, could prevent you from realizing any change of control premium on your shares of our common stock that may otherwise accrue to Ionis on its private sale of our common stock. Additionally, if Ionis privately sells its significant equity interest in our company, we may become subject to the control of a presently unknown third party. Such third party may have conflicts of interest with those of other stockholders. In addition, if Ionis sells a controlling interest in our company to a third party, such a sale could negatively impact or accelerate any future indebtedness we may incur, and negatively impact any other commercial agreements and relationships, all of which may adversely affect our ability to run our business as described herein and may have a material adverse effect on our operating results and financial condition.

Certain of our directors and officers may have actual or potential conflicts of interest because of their positions with Ionis.

Stanley T. Crooke, Chairman of the Board and Chief Executive Officer for Ionis, and B. Lynne Parshall, Senior Strategic Advisor and board member for Ionis, serve on our board of directors and retain their positions or engagements with Ionis. In addition, these individuals own Ionis equity and Ionis equity awards. Ionis common stock, options to purchase Ionis common stock and other Ionis equity awards represent a significant portion of these individuals' net worth. Their position at Ionis and the ownership of any Ionis equity or equity awards creates, or may create the appearance of, conflicts of interest when we ask these individuals to make decisions that could have different implications for Ionis than the decisions have for us. In addition, our certificate of incorporation provides for the allocation of certain corporate opportunities between us and Ionis. Under these provisions, neither Ionis or its other affiliates, nor any of their officers, directors, agents or stockholders, will have any obligation to present to us certain corporate opportunities. For example, a director of our company who also serves as a director, officer or employee of Ionis or any of its other affiliates may present to Ionis certain acquisitions, in-licenses, potential development programs or other opportunities that may be complementary to our business and, as a result, such opportunities may not be available to us. To the extent attractive corporate opportunities are allocated to Ionis or its other affiliates instead of to us, we may not be able to benefit from these opportunities.

The resources Ionis provides us under the license agreements and the services agreement may not be sufficient for us to operate as a standalone company, and we may experience difficulty in separating our resources from Ionis.

Because we have not operated separately from Ionis in the past, we may have difficulty doing so. We will need to acquire resources in addition to, and eventually in lieu of, those provided by Ionis to our company, and may also face difficulty in separating our resources from Ionis' resources and integrating newly acquired resources into our business. In addition, Ionis may prioritize its own research, development, manufacturing and other needs ahead of the services Ionis has agreed to provide us, or Ionis employees who conduct services for us may prioritize Ionis' interests over our interests. Our business, financial condition and results of operations could be harmed if we have difficulty operating as a standalone company, fail to acquire resources that prove to be important to our operations or incur unexpected costs in separating our resources from Ionis' resources or integrating newly acquired resources.

****We may not realize the benefits of the licensing transaction with Ionis if we are unable to successfully transition, integrate and support the development and commercialization of TEGSEDI and AKCEA-TTR-L$_{Rx}$.***

As a result of the licensing transaction with Ionis, we need to successfully transition, integrate and support the assets we acquired related to the commercialization and development of TEGSEDI and AKCEA-TTR-L$_{Rx}$ if we are to realize any of the potential benefits of the licensing transaction. The failure to meet these integration challenges, including the addition of TEGSEDI commercial team and other employees from Ionis and the coordination across geographies between our headquarters in Massachusetts and our commercialization team in other locations, including major global markets, could seriously harm our results of operations. Our failure to implement an orderly integration could result in failure of, or delays in, the development or commercialization of TEGSEDI and AKCEA-TTR-L$_{Rx}$. Such failure or delay could adversely impact our business, results of operations, financial condition and prospects for future growth.

We will incur incremental costs as a standalone company.

Ionis currently performs or supports many important corporate functions for our company. Our consolidated financial statements reflect charges for these services on an allocation basis. Under our services agreement with Ionis we can use these Ionis services for a fixed term established on a service-by-service basis. However, we generally will have the right to terminate a service earlier if we give notice to Ionis. Partial reduction in the provision of any service requires Ionis' consent. In addition, either party will be able to terminate the agreement due to a material breach of the other party, upon prior written notice, subject to limited cure periods.

We will pay Ionis mutually agreed upon fees for these services, based on Ionis' costs of providing the services. Since we negotiated the services agreement in the context of a parent subsidiary relationship, the terms of the agreement, including the fees charged for the services, may be higher or lower than those that would be agreed to by parties bargaining at arm's length for similar services and may be higher or lower than the costs reflected in the allocations in our historical consolidated financial statements. Ionis will pass third party costs through to us at Ionis' cost. In addition, while Ionis provides us these services, our operational flexibility to modify or implement changes with respect to such services or the amounts we pay for them will be limited.

We may not be able to replace these services or enter into appropriate third-party agreements on terms and conditions, including cost, comparable to those that we will receive from Ionis under our services agreement. Additionally, after the agreement terminates, we may not sustain the services at the same levels or obtain the same benefits as when we were receiving such services and benefits from Ionis. When we begin to operate these functions separately, if we do not have our own adequate systems and business functions in place, or cannot obtain them from other providers, we may not operate our business effectively or at comparable costs, and our business may suffer. In addition, we have historically received informal support from Ionis, which may not be addressed in our services agreement. The level of this informal support will diminish and could end in the future.

We may not be able to fully realize the expected benefits of our license agreements with Ionis.

We have development, commercialization and license agreements with Ionis pursuant to which, subject to certain restrictions, we and Ionis will share development responsibilities for WAYLIVRA, TEGSEDI, AKCEA-APO(a)-L $_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development. We are paying for research and development costs and reimbursing Ionis for Ionis' employees supporting our development activities. Until we build or acquire our own capabilities to replace those Ionis is providing to us, particularly development, regulatory and manufacturing services, we will be heavily dependent on Ionis.

While we and Ionis intend the license agreements, on the whole, to bolster our capabilities, certain terms of the license agreements and the other related agreements with Ionis may limit our ability to achieve the expected benefits of these transactions, including:

- a Joint Steering Committee, or JSC, having equal membership from us and Ionis, sets the development strategy for our drugs by mutual agreement. A Regulatory Sub-committee, established by the JSC and having equal membership from our company and Ionis, will set the regulatory strategy for each of our drugs by mutual agreement. If the JSC or the Regulatory Sub-committee cannot come to a mutual agreement, then this could delay our ability to develop and commercialize TEGSEDI, AKCEA-APO(a)-L$_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development. In the event of a disagreement at the JSC related to TEGSEDI or AKCEA-TTR-L$_{Rx}$, Ionis has final decision-making authority on decisions relating to development matters, Akcea has final decision making authority on decision relating to commercial matters, and the holder of the regulatory approvals for a product in a country has final decision making authority for regulatory affairs;
- we will need to mutually agree with Ionis on the terms of any additional sublicense to a third party for WAYLIVRA and AKCEA-ANGPTL-L $_{Rx}$, and will need to obtain Ionis' consent prior to granting any sublicense to a third party for TEGSEDI or AKCEA-TTR-L$_{Rx}$. If we cannot mutually agree on terms for a sublicense to a third party or if Ionis does not consent to a sublicense at all, it could delay or prevent our ability to develop and commercialize our drugs;
- we will need to obtain Ionis' approval to in-license a product, acquire a product or acquire another company, until the time Ionis ceases to hold at least 50% of our outstanding capital stock; and
- there is nothing in our agreements with Ionis to prevent Ionis from developing and commercializing drugs targeting RNAs that are not apoC-III, Apo(a) or ANGPTL3 to pursue the same indications we are pursuing with our drugs.

Each of the foregoing terms and Ionis' other rights under the license agreements, could limit our ability to realize the expected benefits of the license agreements or otherwise limit our ability to pursue transactions or development efforts other stockholders may view as beneficial. Further, if Ionis does not continue to own a significant portion of our equity, Ionis' incentive to help us would be diminished. If we fail to achieve the expected benefits of our agreements with Ionis, it may be more difficult, time consuming or expensive for us to develop and commercialize WAYLIVRA, TEGSEDI, AKCEA-APO(a)-L$_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development, or may result in our drugs being later to market than those of our competitors or prevent them from ever getting to market. If these events cause delays in new product development we could lose the first in class products in a given therapeutic area.

Risks Related to Our Intellectual Property

If we breach our obligations under any of our license agreements with Ionis, we could lose our rights to WAYLIVRA, TEGSEDI, AKCEA-TTR-L$_{Rx}$ and our other drugs in development.

We obtained our rights to WAYLIVRA, TEGSEDI, AKCEA-TTR-L$_{Rx}$ and our other drugs in development under our license agreements with Ionis. If we breach our obligations under these license agreements and, as a result, Ionis subsequently exercises its right to terminate it, we generally would not be able to continue to develop or commercialize TEGSEDI, WAYLIVRA, AKCEA-TTR-L $_{Rx}$ and our other drugs in development that incorporate Ionis' intellectual property, and Ionis would receive a royalty-free, nonexclusive license to our improvements to those programs, meaning we would lose the benefits of our investment in these programs. If we breach our obligations under the license agreement with respect to AKCEA-APO(a)-L$_{Rx}$ or AKCEA-APOCIII-L$_{Rx}$ and, as a result, Ionis exercises its right to terminate it, then our strategic collaboration with Novartis would convert into a direct strategic collaboration between Novartis and Ionis, and Ionis would receive all of the revenue and other benefits associated with that strategic collaboration. Similarly, if we breach our obligations under the license agreement with respect to TEGSEDI or AKCEA-TTR-L$_{Rx}$ and, as a result, Ionis exercises its right to terminate it, then our strategic collaboration with PTC in Latin America and the Caribbean would convert into a direct strategic collaboration between PTC and Ionis, and Ionis would receive all of the revenue and other benefits associated with that strategic collaboration.

If we cannot protect our patent rights or our other proprietary rights, others may compete more effectively against us.

Our success depends to a significant degree upon whether we can continue to secure and maintain intellectual property rights that protect TEGSEDI, WAYLIVRA, AKCEA-APO(a)-L$_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development. However, patents may not issue from any of our pending patent applications in the United States or in other countries and we may not be able to obtain, maintain or enforce our owned or licensed patents and other intellectual property rights which could impact our ability to compete effectively. In addition, the scope of any of our owned or licensed patents may not be sufficiently broad to provide us with a competitive advantage. Furthermore, other parties may successfully challenge, invalidate or circumvent our issued patents or patents licensed to us so that our patent rights do not create an effective competitive barrier or revenue source.

Composition of matter patents on the active pharmaceutical ingredient for a product are generally considered to be the strongest form of intellectual property protection for pharmaceutical products, as such patents provide protection without regard to any method of use. Our WAYLIVRA patent portfolio currently includes:

- issued patent claims to the specific antisense sequence and chemical composition of WAYLIVRA in the United States, Australia, and Europe;
- issued patent claims in the United States and Australia drawn to the use of antisense compounds complementary to an active region of human apoC-III messenger ribonucleic acid, including the site targeted by WAYLIVRA;
- additional patent applications designed to protect the WAYLIVRA composition in Canada; and
- additional methods of use in jurisdictions worldwide for WAYLIVRA.

The natural term of the issued U.S. patent covering the WAYLIVRA composition of matter will expire in 2023, but we plan to seek to extend the U.S. patent expiration beyond 2023 based upon the development and regulatory review period in the United States. The natural term of the granted European and Australian patents covering WAYLIVRA will expire in 2024, but we plan to seek to extend each of these patents beyond 2024 based upon the development and regulatory review periods in Europe and Australia.

The natural term of the last expiring issued U.S. patent covering the composition of matter of TEGSEDI will expire in 2031. Patents issued in other countries will have the same natural term. We plan to seek to extend the term of one patent covering TEGSEDI in the U.S., if approved, and any other jurisdictions where such extension is available, based upon the development and regulatory review periods for TEGSEDI and in accordance with applicable laws.

We cannot be certain that the U.S. Patent and Trademark Office, or U.S. PTO, and courts in the United States or the patent offices and courts in foreign countries will consider the claims in our owned or licensed patents and applications covering WAYLIVRA, TEGSEDI, AKCEA-APO(a)-L $_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development as patentable. Method-of-use patents protect the use of a product for the specified method. This type of patent does not prevent a competitor from making and marketing a product that is identical to our product for an indication that is outside the scope of the patented method. Moreover, even if competitors do not actively promote their product for our targeted indications, physicians may prescribe these products off-label. Although off-label prescriptions may infringe or contribute to the infringement of method-of-use patents, the practice is common and such infringement is difficult to prevent, including through legal action.

If we or any licensor partner loses or cannot obtain patent protection for TEGSEDI, WAYLIVRA, AKCEA-APO(a)-L $_{Rx}$, AKCEA-TTR-L$_{Rx}$ or our other drugs in development it could have a material adverse impact on our business.

Intellectual property litigation could cause us to spend substantial resources and prevent us from pursuing our programs.

From time to time we may have to defend our intellectual property rights. If we are involved in an intellectual property dispute, we may need to litigate to defend our rights or assert them against others. Disputes can involve arbitration, litigation or proceedings declared by the U.S. PTO or the International Trade Commission or foreign patent authorities. Even if resolved in our favor, litigation or other legal proceedings relating to intellectual property claims may cause us to incur significant expenses, and could distract our technical and management personnel from their normal responsibilities. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. Such litigation or proceedings could substantially increase our operating losses and reduce the resources available for development activities or any future sales, marketing or distribution activities. We may not have sufficient financial or other resources to adequately conduct such litigation or proceedings. Some of our competitors may be able to sustain the costs of such litigation or proceedings more effectively than we can because of their greater financial resources and more mature and developed intellectual property portfolios.

****Third parties may initiate legal proceedings alleging that we are infringing their intellectual property rights, the outcome of which would be uncertain and could have a material adverse effect on the success of our business.***

Our commercial success depends upon our ability and the ability of our strategic partners to develop, manufacture, market and sell our drugs and use our proprietary technologies without infringing the proprietary rights and intellectual property of third parties. Extensive litigation regarding patents and other intellectual property rights is common in the biotechnology and pharmaceutical industries. We may in the future become party to, or threatened with, adversarial proceedings or litigation regarding intellectual property rights with respect to our drugs and technology, including interference, derivation, reexamination, post-grant review, opposition, cancellation or similar proceedings before the U.S. PTO or its foreign counterparts.

Third parties may assert infringement claims against us based on existing patents or patents that may be granted in the future. For example, a potential competitor was recently issued a patent which they have broadly characterized in their most recent annual report on Form 10-K as being directed to single-stranded antisense polynucleotide molecules capable of inhibiting expression of the human transthyretin gene, and having certain combinations of structural features. This third party has also attempted to broadly characterize certain other patents that they hold. While we believe that we would have substantial defenses in the event this competitor brought a claim against us with respect to TEGSEDI or AKCEA-TTR-L$_{Rx}$, patent litigation is inherently uncertain, involves substantial cost and is a distraction to management. Moreover, our stock price may be impacted by the existence of or developments during a litigation, even developments that are preliminary in nature.

We may not be aware of all such intellectual property rights potentially relating to our drugs and their uses. If a third party claims that WAYLIVRA, TEGSEDI, AKCEA-APO(a)-L$_{Rx}$, AKCEA-TTR-L$_{Rx}$, our other drugs in development or our technology infringe its patents or other intellectual property rights, we or our partners may have to discontinue an important product or product line, alter our products and processes, pay license fees or cease certain activities. We may not be able to obtain a license to needed intellectual property on favorable terms, if at all. There are many patents issued or applied for in the biotechnology industry, and we may not be aware of patents or patent applications held by others that relate to our business. This is especially true since patent applications in the United States are filed confidentially for the first 18 months. Moreover, the validity and breadth of biotechnology patents involve complex legal and factual questions for which important legal issues remain. Thus, we do not know with certainty that our drugs or our intended commercialization thereof, does and will not infringe or otherwise violate any third party's intellectual property.

We will not seek to protect our intellectual property rights in all jurisdictions throughout the world and we may not be able to adequately enforce our intellectual property rights even in the jurisdictions where we seek protection.

Filing, prosecuting and defending patents on our drugs in all countries and jurisdictions throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States could be less extensive than those we could obtain in the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as laws in the United States. Consequently, we may not be able to prevent third parties from practicing our inventions in all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions.

Competitors may use our technologies in jurisdictions where we do not pursue and obtain patent protection to develop their own products. In addition, competitors may export otherwise infringing products to territories where we have patent protection, but enforcement is not as strong as that in the United States. These products may compete with our products and our patent rights or other intellectual property rights may not be effective or sufficient to prevent them from competing. Even if we pursue and obtain issued patents in particular jurisdictions, our patent claims or other intellectual property rights may not be effective or sufficient to prevent third parties from so competing.

The laws of some foreign countries do not protect intellectual property rights to the same extent as the laws of the United States. Many companies have encountered significant problems in protecting and defending intellectual property rights in certain foreign jurisdictions. The legal systems of some countries, particularly developing countries, do not favor the enforcement of patents and other intellectual property protection, especially those relating to biotechnology. This could make it difficult for us to stop competitors from infringing our patent rights or misappropriating 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. In addition, many countries limit our right to enforce our patent rights against third parties, including government agencies or government contractors. In these countries, patents may provide limited or no benefit. We must ultimately seek patent protection on a country-by-country basis, which is an expensive and time-consuming process with uncertain outcomes. Accordingly, we may choose not to seek patent protection in certain countries, and we will not have the benefit of patent protection in such countries.

In addition, proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patent rights at risk of being invalidated or interpreted narrowly, could put our owned or licensed 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. Accordingly, our efforts to enforce our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

If we do not obtain additional protection under the Hatch-Waxman Amendments and similar foreign legislation by extending the patent protection for TEGSEDI, WAYLIVRA, AKCEA-APO(a)-L$_{Rx}$, AKCEA-TTR-L$_{Rx}$, and our other drugs in development, our business may be materially harmed.

Depending upon the timing, duration and specifics of the first FDA marketing authorization of TEGSEDI,WAYLIVRA, AKCEA-APO(a)-L $_{Rx}$, AKCEA-TTR-L$_{Rx}$, and our other drugs in development, a United States patent that we own or license may be eligible for limited patent term restoration under the Drug Price Competition and Patent Term Restoration Act of 1984, referred to as the Hatch-Waxman Amendments. The Hatch-Waxman Amendments allow the owner of an approved product to extend patent protection for up to five years as compensation for patent term lost during product development and the FDA regulatory review process. During this period of extension, the scope of protection is limited to the approved product and approved uses.

Although we plan on seeking patent term restoration for our products, we may not succeed if, for example, we fail to apply within applicable deadlines, fail to apply prior to expiration of relevant patents or otherwise fail to satisfy applicable requirements. Moreover, the applicable time period or the scope of patent protection afforded could be less than we request. If we cannot obtain patent term restoration or the term of any such patent restoration is less than we request, our competitors may enter the market and compete against us sooner than we anticipate, and our ability to generate revenue could be materially adversely affected.

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

Recent United States Supreme Court rulings have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. 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 decisions by the United States Congress, the federal courts, and the U.S. PTO, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce our existing patents and patents that we might obtain in the future.

If we and our partners do not adequately protect the trademarks and trade names for our products, then we and our partners may not be able to build name recognition in our markets of interest and our business may be adversely affected.

Our competitors or other third parties may challenge, infringe or circumvent the trademarks or trade names for our products. We and our partners may not be able to protect these trademarks and trade names. In addition, if the trademarks or trade names for one of our products infringe the rights of others, we or our partners may be forced to stop using the trademarks or trade names, which we need for name recognition in our markets of interest. If we cannot establish name recognition based on our trademarks and trade names, we and our partners may not be able to compete effectively and our business may be adversely affected.

Intellectual property rights do not necessarily address all potential threats to our competitive advantage.

The degree of future protection afforded by our intellectual property rights is uncertain because intellectual property rights have limitations, and may not adequately protect our business, or permit us to maintain our competitive advantage. The following examples are illustrative:

- others may make compounds that are similar to our drugs but that are not covered by the claims of the patents that we own or have exclusively licensed;
- we, or our license partners or current or future strategic partners, might not have been the first to make the inventions covered by the issued patent or pending patent application that we own or have exclusively licensed;
- we, or our license partners or current or future strategic partners, might not have been the first to file patent applications covering our inventions;
- others may independently develop similar or alternative technologies or duplicate any of our technologies without infringing our intellectual property rights;
- our pending licensed patent applications or those that we own in the future may not lead to issued patents;
- issued patents that we hold rights to may be held invalid or unenforceable, including as a result of legal challenges by our competitors;
- our competitors might conduct research and development activities in countries where we do not have patent rights and then use the information learned from such activities to develop competitive products for sale in our major commercial markets;
- we may not develop additional proprietary technologies that are patentable; and
- the patents of others may have an adverse effect on our business.

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

Risks Related to Our Business and Industry

We will need to significantly increase the size of our organization, and we may experience difficulties in managing growth.

We are currently a small company. To commercialize TEGSEDI, WAYLIVRA, and our other drugs in development that we are responsible for commercializing, we will need to increase our operations and expand our use of third-party contractors. We plan to continue to build our compliance, financial and operating infrastructure to ensure the maintenance of a well-managed company including hiring additional staff within our regulatory, clinical and medical affairs groups and an in-house commercial organization initially focused on marketing and selling TEGSEDI and, if approved, WAYLIVRA. We have added a significant number of new employees to our sales and marketing capability to commercialize TEGSEDI and in anticipation of WAYLIVRA's potential approval.

The current and future growth will impose significant added responsibilities on our management, including the need to maintain, integrate, optimize and manage additional employees. In addition, to meet our obligations as a public company, we will need to increase our general and administrative capabilities. Our current management, personnel and systems may not be adequate to support this growth. Our future financial performance and our ability to commercialize our drugs and to compete effectively will depend, in part, on our ability to manage any future growth effectively. To that end, we must be able to:

- manage the manufacturing of our drugs for clinical and commercial use;
- integrate current and additional management, administrative, financial and sales and marketing personnel;
- optimize and manage a marketing and sales infrastructure;
- maintain personnel necessary to effectively commercialize TEGSEDI and, if approved, WAYLIVRA and our other drugs in development;
- manage our clinical studies and the regulatory process effectively;
- develop our administrative, accounting and management information systems and controls; and
- hire and train additional qualified personnel.

Our staff, financial resources, systems, procedures or controls may be inadequate to support our operations and our management may be unable to successfully manage future market opportunities or our relationships with customers and other third parties.

If we do not progress in our programs as anticipated, the price of our securities could decrease.

For planning purposes, we estimate and may disclose the timing of a variety of clinical, regulatory and other milestones, such as when we anticipate a certain drug will enter into clinical trials, when we anticipate completing a clinical study, when we anticipate filing an application for marketing authorization, or when we or our partners plan to commercially launch a drug. We base our estimates on present facts and a variety of assumptions. Many underlying assumptions are outside of our control. If we do not achieve milestones in accordance with our or our investors' or securities analysts' expectations, including milestones related to WAYLIVRA, TEGSEDI, AKCEA-APO(a)-L $_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development, the price of our securities could decrease.

The loss of key personnel, or if we cannot attract and retain highly skilled personnel, could make it more difficult to run our business and reduce our likelihood of success.

We are dependent on the principal members of our management and scientific staff. We do not have employment agreements with any of our executive officers that would prevent them from leaving us. The loss of management and key scientific employees might slow the achievement of important research and development goals. It is also critical to our success that we recruit and retain qualified scientific personnel to perform development work and marketing, sales and commercial support personnel to perform commercialization activities. We may not be able to attract and retain skilled and experienced scientific and commercial personnel on acceptable terms because of intense competition for experienced personnel among many pharmaceutical and health care companies, universities and non-profit research institutions. In addition, failure to successfully complete clinical studies, obtain regulatory approvals or effectively commercialize drugs may make it more challenging to recruit and retain qualified personnel.

We are exposed to potential product liability claims, and insurance against these claims may not be available to us at a reasonable rate in the future or at all.

Our business exposes us to potential product liability risks that are inherent in the testing, manufacturing, marketing and sale of therapeutic products, including potential product liability claims related to TEGSEDI, WAYLIVRA, AKCEA-APO(a)-L $_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development. We have clinical study insurance coverage and commercial product liability insurance coverage. In addition, Novartis has agreed to indemnify us against specific claims arising from Novartis' development and commercialization of AKCEA-APO(a)-L$_{Rx}$ and AKCEA-APOCIII-L$_{Rx}$, and PTC has agreed to indemnify us against specific claims arising from PTC's commercialization of TEGSEDI and WAYLIVRA in Latin America and the Caribbean. However, this insurance coverage and indemnities may not be adequate to cover claims against us. Insurance may not be available to us at an acceptable cost, if at all. Regardless of their merit or eventual outcome, products liability claims may result in decreased demand for our drug products, injury to our reputation, withdrawal of clinical study volunteers and loss of revenue. Thus, whether or not we are insured or indemnified, a product liability claim or product recall may result in losses that could be material.

Because we use biological materials, hazardous materials, chemicals and radioactive compounds, if we do not comply with laws regulating the protection of the environment and health and human safety, our business could be adversely affected.

Our development and manufacturing activities involve the use of potentially harmful biological materials as well as materials, chemicals and various radioactive compounds that could be hazardous to human health and safety or the environment. We cannot completely eliminate the risk of contamination, which could cause:

- interruption of our development, manufacturing and distribution efforts;
- injury to our employees and others;
- environmental damage resulting in costly clean up; and
- liabilities under federal, state and local laws and regulations governing health and human safety, as well as the use, storage, handling and disposal of these materials and resultant waste products.

In such an event, we may be held liable for any resulting damages, and any liability could exceed our resources. Although we carry insurance in amounts and types that we consider commercially reasonable, we do not have insurance coverage for losses relating to an interruption of our development, manufacturing or commercialization efforts caused by contamination, and the coverage or coverage limits of our insurance policies may not be adequate. If our losses exceed our insurance coverage, our financial condition would be adversely affected.

A variety of risks associated with operating our business and marketing our drugs internationally could materially adversely affect our business.

In addition to our U.S. operations, we are commercializing TEGSEDI in Europe and, following approval, plan to establish operations to commercialize our products in other countries globally. We face risks associated with our current and planned international operations, including possible unfavorable regulatory, pricing and reimbursement, political, tax and labor conditions, which could harm our business. Because we have international operations we are subject to numerous risks associated with international business activities, including:

- compliance with differing or unexpected regulatory requirements for our drugs and foreign employees;
- complexities associated with managing multiple payor reimbursement regimes, government payors or patient self-pay systems;
- difficulties in staffing and managing foreign operations;
- in certain circumstances, increased dependence on the commercialization efforts and regulatory compliance of third-party distributors or strategic partners;
- foreign government taxes, regulations and permit requirements;
- U.S. and foreign government tariffs, trade restrictions, price and exchange controls and other regulatory requirements;
- anti-corruption laws, including the Foreign Corrupt Practices Act, or the FCPA, and its equivalent in foreign jurisdictions;
- economic weakness, including inflation, natural disasters, war, events of terrorism or political instability in particular foreign countries;
- fluctuations in currency exchange rates, which could result in increased operating expenses and reduced revenue, and other obligations related to doing business in another country;
- compliance with tax, employment, privacy, immigration and labor laws, regulations and restrictions for employees living or traveling abroad;
- workforce uncertainty in countries where labor unrest is more common than in the United States; and
- changes in diplomatic and trade relationships.

The UK's anticipated exit from the European Union could increase these risks.

Our business activities outside of the United States are subject to the FCPA and similar anti-bribery or anti-corruption laws, regulations or rules of other countries in which we operate, including the U.K.'s Bribery Act 2010. In many other countries, the healthcare providers who prescribe pharmaceuticals are employed by their government, and the purchasers of pharmaceuticals are government entities; therefore, any dealings with these prescribers and purchasers may be subject to regulation under the FCPA. There is no certainty that all employees and third-party business partners (including our distributors, wholesalers, agents, contractors and other partners) will comply with anti-bribery laws. In particular, we do not control the actions of manufacturers and other third-party agents, although we may be liable for their actions. Violation of these laws may result in civil or criminal sanctions, which could include monetary fines, criminal penalties, and disgorgement of past profits, which could have a material adverse impact on our business and financial condition.

If a natural or man-made disaster strikes our development or manufacturing facilities or otherwise affects our business, it could delay our progress developing and commercializing our drugs.

We currently rely on Ionis to manufacture our clinical supplies in a manufacturing facility located in Carlsbad, California and third party contract manufacturing organizations to manufacture active pharmaceutical ingredient and finished drug product for TEGSEDI. The facilities and the equipment required to develop and manufacture our drugs would be costly to replace and could require substantial lead time to repair or replace. Natural or man-made disasters, including, without limitation, earthquakes, floods, fires and acts of terrorism may harm these facilities. If a disaster affects these facilities, our and our partners' development and commercialization efforts would be delayed. Although we possess insurance for damage to our property and the disruption of our business from casualties, this insurance may not be sufficient to cover all of our potential losses and may not continue to be available to us on acceptable terms, or at all. In addition, a shutdown of the U.S. government, including the FDA could harm or delay our development and commercialization activities.

****Our business and operations would suffer in the event of computer system failures.***

Despite the implementation of security measures, our internal computer systems, and those of our CROs, manufacturers and other third parties on which we rely, are vulnerable to damage from computer viruses, unauthorized access, natural disasters, terrorism, war and telecommunication and electrical failures. If issues were to arise and cause interruptions in our operations, it could result in a material disruption of our drug programs. For example, the loss of clinical study data from completed or ongoing or planned clinical studies could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. To the extent that any disruption or security breach were to result in a loss of or damage to our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability and the further development of WAYLIVRA, TEGSEDI, AKCEA-APO(a)-L$_{Rx}$, AKCEA-TTR-L$_{Rx}$ and our other drugs in development could be delayed.

Risks Related to Our Common Stock

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

We are an "emerging growth company," as defined in the JOBS Act, and we may take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not "emerging growth companies" including, but not limited to, the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. We cannot predict if investors will find our common stock less attractive if we choose to rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

An active public trading market for our common stock may not be sustained.

Prior to the completion of our IPO in July 2017, no public market for our common stock existed. An active public trading market for our common stock may not be sustained. The lack of an active market may impair your ability to sell your shares at the time you wish to sell them or at a price that you consider reasonable. The lack of an active market may also reduce the fair value of your shares. An inactive market may also impair our ability to raise capital to continue to fund operations by selling shares. Additionally, Ionis owns approximately 75% of our outstanding common stock. Ionis intends to hold its shares of our common stock for the foreseeable future, which could reduce the public market for our stock.

****The market price for our common stock may be volatile, which could contribute to the loss of your investment.***

Fluctuations in the price of our common stock could contribute to the loss of all or part of your investment. There has been a public market for our common stock for a limited period of time. The trading price of our common stock is likely to be highly volatile and could be subject to wide fluctuations in response to various factors, some of which are beyond our control. Any of the factors listed below could have a material adverse effect on your investment in our common stock and our common stock may trade at prices significantly below your purchase price. In such circumstances the trading price of our common stock may not recover and may experience a further decline.

Factors affecting the trading price of our common stock may include:

- our failure to effectively develop and commercialize TEGSEDI, WAYLIVRA and our other drugs in development;
- Novartis' failure to exercise its option and/or effectively develop and commercialize AKCEA-APO(a)-L_{Rx} and AKCEA-APOCIII-L_{Rx} to the extent it exercises its option to license those drugs from us;
- PTC's failure to effectively commercialize TEGSEDI or WAYLIVRA in Latin America and the Caribbean;
- changes in the market's expectations about our operating results;
- adverse results or delays in preclinical or clinical studies;
- our decision to initiate a clinical study, not to initiate a clinical study or to terminate an existing clinical study;
- adverse regulatory decisions, including failure to receive additional regulatory approvals for TEGSEDI, or regulatory approval for WAYLIVRA, AKCEA-APO(a)-L_{Rx}, AKCEA-TTR-L_{Rx} and our other drugs in development;
- success or failure of competitive products or antisense drugs more generally;
- adverse developments concerning our manufacturers or our strategic partnerships;
- inability to obtain adequate product supply for any drug for clinical studies or commercial sale or inability to do so at acceptable prices;
- the termination of a strategic partnership or the inability to establish additional strategic partnerships;
- unanticipated serious safety concerns related to the use of TEGSEDI, WAYLIVRA, AKCEA-APO(a)-L_{Rx}, AKCEA-TTR-L_{Rx} and our other drugs in development;
- adverse safety or other clinical results, such as those that have occurred in the past or that may occur in the future, related to drugs being developed by Ionis or other companies that are or may be perceived to be similar to our drugs;
- our ability to effectively manage our growth;
- the size and growth, if any, of the targeted market;
- our operating results do not meet the expectation of securities analysts or investors in a particular period;
- actual or anticipated fluctuations in our quarterly financial results or the quarterly financial results of companies perceived to be similar to us;
- securities analysts do not publish reports about us or our business or publish negative reports;
- changes in financial estimates and recommendations by securities analysts concerning our company, our market opportunity, or the biotechnology and pharmaceutical industries in general;
- operating and stock price performance of other companies that investors deem comparable to us;
- overall performance of the equity markets;
- announcements by us or our competitors of acquisitions, new drugs or programs, significant contracts, commercial relationships or capital commitments;
- our and our strategic partners' ability to successfully market TEGSEDI, WAYLIVRA, AKCEA-APO(a)-L_{Rx}, AKCEA-TTR-L_{Rx} and our other drugs in development;
- changes in laws and regulations affecting our business, including but not limited to clinical study requirements for approvals;
- disputes or other developments relating to proprietary rights, including patents, litigation matters and our ability to obtain and maintain patent protection for TEGSEDI, WAYLIVRA, AKCEA-APO(a)-L_{Rx}, AKCEA-TTR-L_{Rx} and our other drugs in development;
- commencement of, or involvement in, litigation involving our company, our general industry, or both;
- changes in our capital structure, such as future issuances of securities or the incurrence of additional debt;
- the volume of shares of our common stock available for public sale;
- additions or departures of key scientific or management personnel;
- any major change in our board or management;
- changes in accounting practices;
- ineffectiveness of our internal control over financial reporting;
- significant changes in our relationship with Ionis;
- sales of substantial amounts of common stock by our directors, executive officers or significant stockholders or the perception that such sales could occur; and
- general economic and political conditions such as recessions, interest rates, fuel prices, elections, drug pricing policies, international currency fluctuations and acts of war or terrorism.

Broad market and industry factors may materially harm the market price of our common stock irrespective of our operating performance. The stock market in general, and NASDAQ and the market for biotechnology companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of the particular companies affected. The trading prices and valuations of these stocks, and of ours, may not be predictable. A loss of investor confidence in the market for biotechnology or pharmaceutical stocks or the stocks of other companies which investors perceive to be similar to us, the opportunities in the biotechnology and pharmaceutical market or the stock market in general, could depress our stock price regardless of our business, prospects, financial conditions or results of operations.

Sales of a substantial number of shares of our common stock by our existing stockholders in the public market may cause our stock price to decline.

Sales of our common stock in the public market, or the perception that these sales may occur, could cause the market price of our common stock to decline. Novartis has agreed that it will not sell any of its shares until the earlier of January 5, 2020 or six months after we stop developing a drug under our agreement with Novartis. Thereafter, Novartis may only sell a limited number of shares each day. Up to an additional 65,712,116 shares of common stock held by Ionis are eligible for sale in the public market, all of which will be subject to volume limitations under Rule 144 under the Securities Act. In addition, 13,500,000 shares of common stock that are either subject to outstanding options or reserved for future issuance under our employee benefit plans are eligible for sale in the public market to the extent permitted by the provisions of various vesting schedules, the lock-up agreements and Rule 144 and Rule 701 under the Securities Act. To the extent the holders of these shares sell them into the market or our stockholders believe these sales might occur, the market price of our common stock could decline.

We cannot predict with certainty whether or when Ionis will sell a substantial number of shares of our common stock. Ionis' sale of a substantial number of shares, or a perception that such sales could occur, could significantly reduce the market price of our common stock.

We do not expect to pay any cash dividends for the foreseeable future.

You should not rely on an investment in our common stock to provide dividend income. We do not anticipate that we will pay any cash dividends to holders of our common stock in the foreseeable future. Instead, we plan to retain any earnings to maintain and expand our operations. Accordingly, investors must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any return on their investment. As a result, investors seeking cash dividends should not purchase our common stock.

The United States recently passed a comprehensive tax reform bill that could adversely affect our financial performance.

On December 22, 2017, the U.S. government enacted comprehensive tax legislation commonly referred to as the Tax Cut and Jobs Act of 2017, or the Tax Act. The Tax Act makes broad and complex changes to the U.S. tax code. The changes include, but are not limited to, reduction of the corporate tax rate from 35% to 21%, limitation of the tax deduction for interest expense, limitation on the utilization of net operating losses to 80% of taxable income and elimination of net operating loss carrybacks, a mandatory one-time transition tax on certain unrepatriated earnings of foreign subsidiaries, introduction of bonus depreciation that allows for full expensing of qualified property, and modifying or repealing many business tax deductions and credits. Notwithstanding the reduction in the corporate income tax rate, the overall impact of the new federal tax law is uncertain, and our financial performance could be adversely affected. In addition, it is uncertain if, and to what extent various states will conform to the new tax law and foreign countries may react by adopting tax legislation or taking other actions that could adversely affect our business.

Uncertainties in the interpretation and application of the 2017 Tax Cuts and Jobs Act could materially affect our tax obligations, effective tax rate and operating results.

The Tax Act was enacted on December 22, 2017 and significantly affected U.S. tax law by changing how the U.S. imposes income tax on multinational corporations. The U.S. Department of Treasury has broad authority to issue regulations and interpretative guidance that may significantly impact our tax obligations, effective tax rate and our results of operations. The Tax Act will likely be subject to ongoing technical guidance and accounting interpretation, which we will continue to monitor and assess. It is not possible to fully measure the potential impact on our business, prospects or results of operations at this time.

We could be subject to additional tax liabilities.

We are subject to U.S. federal, state, local and sales taxes in the United States and foreign income taxes, withholding taxes and transaction taxes in foreign jurisdictions. Significant judgment is required in evaluating our tax positions and our worldwide provision for taxes. During the ordinary course of business, there are many activities and transactions for which the ultimate tax determination is uncertain. In addition, our tax obligations and effective tax rates could be adversely affected by changes in the relevant tax, accounting and other laws, regulations, principles and interpretations, including those relating to income tax nexus, by recognizing tax losses or lower than anticipated earnings in jurisdictions where we have lower statutory rates and higher than anticipated earnings in jurisdictions where we have higher statutory rates, by changes in foreign currency exchange rates, or by changes in the valuation of our deferred tax assets and liabilities. We may be audited in various jurisdictions, and such jurisdictions may assess additional taxes, sales taxes and value-added taxes against us. Although we believe our tax estimates are reasonable, the final determination of any tax audits or litigation could be materially different from our historical tax provisions and accruals, which could have a material adverse effect on our operating results or cash flows in the period for which a determination is made.

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 biotechnology companies have experienced significant stock price volatility in recent years. If we face such litigation, it could result in substantial costs and a diversion of management's attention and resources, which could harm our business.

Provisions in our amended and restated certificate of incorporation, our amended and restated bylaws and Delaware law may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our stockholders, and may prevent attempts by our stockholders to replace or remove our current management.

Our amended and restated certificate of incorporation, amended and restated bylaws and Delaware law contain provisions that may have the effect of delaying or preventing a change in control of us or changes in our management. Our amended and restated certificate of incorporation and bylaws include provisions that:

- authorize "blank check" preferred stock, which could be issued by our board of directors without stockholder approval and may contain voting, liquidation, dividend and other rights superior to our common stock;
- specify that only board of directors or holders of greater than 10% of our common stock can call special meetings of our stockholders;
- prohibit stockholder action by written consent once Ionis no longer holds a majority of our voting power;
- establish an advance notice procedure for stockholder approvals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to our board of directors;
- provide that a majority of directors then in office, even though less than a quorum, may fill vacancies on our board of directors;
- specify that no stockholder is permitted to cumulate votes at any election of directors;
- expressly authorize our board of directors to modify, alter or repeal our amended and restated bylaws; and
- require supermajority votes of the holders of our common stock to amend specified provisions of our amended and restated certificate of incorporation and amended and restated bylaws.

These provisions, alone or together, could delay or prevent hostile takeovers and changes in control or changes in our management. Further, Novartis has agreed that until Novartis holds less than 7.5% of our outstanding common stock, Novartis will vote the Novartis Private Placement Shares consistent with the recommendation of our board of directors. Although Novartis has retained the right to vote the Novartis Private Placement Shares in its sole discretion in connection with certain enumerated matters, including any transaction which would result in our change of control, our agreement with Novartis may nevertheless delay or prevent changes in our management or board of directors.

In addition, because we are incorporated in the State of Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which limits the ability of stockholders owning in excess of 15% of our outstanding voting stock to merge or combine with us.

Any provision of our amended and restated certificate of incorporation or amended and restated bylaws or Delaware law that has the effect of delaying or deterring a change in control could limit your opportunity to receive a premium for your shares of our common stock, and could also affect the price that some investors are willing to pay for our common stock.

Our bylaws designate the Court of Chancery of the State of Delaware and federal court within the State of Delaware as the exclusive forum for certain types of actions and proceedings that our stockholders may initiate, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our bylaws provide that, subject to limited exceptions, the Court of Chancery of the State of Delaware and federal court within the State of Delaware will be exclusive forums for any:

- derivative action or proceeding brought on our behalf;
- action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders;
- action asserting a claim against us arising pursuant to any provision of the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated bylaws; or
- other action asserting a claim against us that is governed by the internal affairs doctrine.

Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock shall be deemed to have notice of and to have consented to the provisions of our bylaws described above. This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers and employees. Alternatively, if a court were to find these provisions of our amended and restated certificate of incorporation inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could adversely affect our business and financial condition.

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

(a) Recent Sales of Unregistered Equity Securities

None.

(b) Use of Proceeds

On July 19, 2017, we closed our initial public offering of 17,968,750 shares of common stock at an offering price of $8.00 per share, resulting in gross proceeds to us of approximately $143.8 million. All of the shares issued and sold in our initial public offering were registered under the Securities Act pursuant to a registration statement on Form S-1 (File No. 333-216949), which was declared effective by the SEC on July 13, 2017. Cowen and Company, LLC, Stifel, Nicolaus & Company, Incorporated and Wells Fargo Securities, LLC acted as joint book-running managers for our initial public offering and BMO Capital Markets Corp. acted as lead manager for our initial public offering. The offering commenced on June 20, 2017 and did not terminate before all of the securities registered in the registration statement were sold.

The net proceeds to us, after deducting underwriting discounts and commissions of approximately $8.4 million and offering expenses of approximately $3.1 million, were approximately $132.3 million. No offering expenses were paid directly or indirectly to any of our directors or officers (or their associates) or persons owning ten percent or more of any class of our equity securities or to any other affiliates. There has been no material change in the planned use of proceeds from our initial public offering from those disclosed in the final prospectus for our initial public offering dated as of on July 13, 2017 and filed with the SEC pursuant to Rule 424(b)(4).

As of June 30, 2018, all of the expenses incurred in connection with our initial public offering had been paid.

(c) Issuer Purchase of Equity Securities

None.

ITEM 3. DEFAULT UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

Not Applicable.

ITEM 6. EXHIBITS

a. Exhibits

Exhibit Number	Description of Document
3.1(1)	Amended and Restated Certificate of Incorporation of Akcea Therapeutics, Inc., as amended to date
3.2(2)	Amended and Restated Bylaws of Akcea Therapeutics, Inc.
4.1(3)	Amended and Restated Investor Rights Agreement, dated March 14, 2018, by and between Akcea Therapeutics, Inc. and Ionis Pharmaceuticals, Inc.
10.1	Lease dated April 5, 2018 by and between Akcea Therapeutics, Inc. and MEPT Seaport 13 Stillings LLC
10.2	Offer Letter dated April 17, 2018 by and between Akcea Therapeutics, Inc. and Sarah Boyce
10.3	Second Amendment of Lease dated May 18, 2018 by and between Akcea Therapeutics, Inc. and 55 Cambridge Parkway, LLC
10.4(4)	Akcea Therapeutics, Inc. 2015 Equity Incentive Plan, as amended
31.1	Certification by Chief Executive Officer pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as amended
31.2	Certification by Chief Financial Officer pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as amended
32.1*	Certification Pursuant to 18 U.S.C. Section 1350 as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101	The following financial statements from the Akcea Therapeutics, Inc. Quarterly Report on Form 10-Q for the quarter ended June 30, 2018, formatted in Extensive Business Reporting Language (XBRL): (i) condensed consolidated balance sheets, (ii) condensed consolidated statements of operations, (iii) condensed consolidated statements of comprehensive loss, (iv) condensed consolidated statements of cash flows and (v) notes to condensed consolidated financial statements (detail tagged).

* This certification is deemed not filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liability of that section, nor shall it be deemed incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended.

(1) Previously filed as Exhibit 3.1 to the Registrant's Quarterly Report on Form 10-Q (File No. 001-38137), filed with the Securities and Exchange Commission on May 7, 2018, and incorporated herein by reference.

(2) Previously filed as Exhibit 3.2 to the Registrant's Current Report on Form 8-K (File No. 001-38137), filed with the Securities and Exchange Commission on July 19, 2017, and incorporated herein by reference.

(3) Previously filed as Exhibit 4.1 to the Registrant's Current Report on Form 8-K (File No. 001-38137), filed with the Securities and Exchange Commission on March 15, 2018, and incorporated herein by reference.

(4) Previously filed as Exhibit 10.5 to the Registrant's Quarterly Report on Form 10-Q (File No. 001-38137), filed with the Securities and Exchange Commission on May 7, 2018, and incorporated herein by reference.

SIGNATURES

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

AKCEA THERAPEUTICS, INC.

Signatures	Title	Date
/s/ PAULA SOTEROPOULOS Paula Soteropoulos	Chief Executive Officer (on behalf of the Registrant and in her capacity as principal executive officer)	August 7, 2018
/s/ MICHAEL MACLEAN Michael MacLean	Chief Financial Officer (on behalf of the Registrant and in his capacity as principal financial and accounting officer)	August 7, 2018

Exhibit 10.1

GROSS LEASE
(w/Base Amounts)

THIS LEASE (this "Lease") is made by and between

"Landlord" MEPT Seaport 13 Stillings LLC, a Delaware limited liability company

and

"Tenant" Akcea Therapeutics, Inc., a Delaware corporation.

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LIST OF EXHIBITS

SECTION 1: DEFINITIONS

Access Laws: The Americans With Disabilities Act of 1990 (including the Americans with Disabilities Act Accessibility Guidelines for Building and Facilities) and all other Governmental Requirements relating to the foregoing.

Additional Rent: Defined in the Section entitled "Additional Rent".

Affiliate: An entity controlling, controlled by, or under common control with Tenant (control being defined as ownership of more than fifty percent (50%) of the beneficial ownership of the entity in question).

Base Amount Allocable to the Premises: Defined in Section entitled "Additional Rent".

Base Rent: Subject to Section 3.3 hereof, the monthly amount of Base Rent and the portion of the Lease Term during which such monthly amount of Base Rent is payable shall be determined from the following table. For convenience and ease of reference, the annual rental rate for the computation of Base Rent and the annual Base Rent are also set forth in tabular form with the annual Base Rent equaling the monthly Base Rent installment multiplied by twelve. In the case of any conflict or inconsistency between the monthly Base Rent installment and the other illustrative figures set forth in tabular form or in any computations utilizing such figures, the monthly Base Rent installment so specified shall be controlling and conclusive.

Applicable Portion of Lease Term				
Beginning	Ending	Per/Rentable Sq. Ft./ Annum	Annual Base Rent	Monthly Base Rent
Month 1	Month 12	$ 74.00	$ 2,232,950.00	$ 186,079.16
Month 13	Month 24	$ 75.00	$ 2,263,125.00	$ 188,593.75
Month 25	Month 36	$ 76.00	$ 2,293,300.00	$ 191,108.33
Month 37	Month 48	$ 77.00	$ 2,323,475.00	$ 193,622.92
Month 49	Month 60	$ 78.00	$ 2,353,650.00	$ 196,137.50
Month 61	Month 72	$ 79.00	$ 2,383,825.00	$ 198,652.08
Month 73	Month 84	$ 80.00	$ 2,414,000.00	$ 201,166.67
Month 85	Month 96	$ 81.00	$ 2,444,175.00	$ 203,681.25
Month 97	Month 108	$ 82.00	$ 2,474,350.00	$ 206,195.83
Month 109	Month 120	$ 83.00	$ 2,504,525.00	$ 208,710.42
Month 121	Month 123	$ 84.00	$ 2,534,700.00	$ 211,225.00

The above rent schedule begins on the first day of the first full month of the Lease Term beginning on or after the Commencement Date. If the Commencement Date is a date other than the first day of a calendar month, then, subject to Section 3.3 hereof, Base Rent for the partial month in which the Commencement Date occurs shall be at the same rate as months 1 through 12, but shall be prorated as provided in Section 3.2 hereof.

Brokers: Tenant was represented in this transaction by JLL Boston ("Tenant's Broker"), a licensed real estate broker. Landlord was represented in this transaction by CB Richard Ellis N.E. Partners, L.P. ("Landlord's Broker"), a licensed real estate broker.

Building: The building located on the Land at 22 Boston Wharf Road, Boston, Massachusetts, containing approximately 120,143 rentable square feet.

Business Day: Calendar days, except for Saturdays, Sundays and Holidays.

Claims: An individual and collective reference to any and all claims, demands, damages, injuries, losses, liens, liabilities, penalties, fines, lawsuits, actions, other proceedings and expenses (including attorneys' fees and expenses incurred in connection with the proceeding whether at trial or on appeal).

Commencement Date: The earliest of (a) the date on which Tenant occupies any portion of the Premises and begins conducting business therein, (b) the date on which the Tenant Improvements (as defined in Exhibit C attached hereto) in the Premises are Substantially Completed (as defined in Exhibit C attached hereto), (c) the date on which the Tenant Improvements in the Premises would have been Substantially Completed but for the occurrence of any Tenant Delay Days (as defined in Exhibit C attached hereto), or (d) August 15, 2018.

Effective Date: The date of this Lease set forth on the signature page hereof.

ERISA: The Employee Retirement Income Security Act of 1974, as now or hereafter amended, and the regulations promulgated under it.

Estimated Operating Costs Allocable to the Premises: Defined in the Section entitled "Additional Rent".

Events of Default: One or more of those events or states of facts defined in the Section entitled "Events of Default".

Governmental Agency: The United States of America, the state in which the Land is located, any county, city, district, municipality or other governmental subdivision, court or agency or quasi-governmental agency having jurisdiction over the Land and any board, agency or authority associated with any such governmental entity, including the fire department having jurisdiction over the Land.

Governmental Requirements: Any and all statutes, ordinances, codes, laws, rules, regulations, orders, directives and requirements of any Governmental Agency as now or later enacted, promulgated or amended and all permits and approvals now or later issued by any Governmental Agency with respect to the Premises, the Building or the use thereof.

Green Agency Ratings: Any one or more of the following ratings, as same may be in effect or amended or supplemented from time to time: The U.S. EPA's Energy Star® rating and/or Design to Earn Energy Star, the Green Building Initiative's Green GlobesTM for Continual Improvement of Existing Buildings (Green GlobesTM-CIEB), the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system, LEED EBOM (existing buildings operations and maintenance) and any applicable substitute third party or governmental mandated rating systems.

Hazardous Substance(s): Asbestos, PCBs, petroleum or petroleum-based chemicals or substances, urea formaldehyde or any chemical, material, element, compound, solution, mixture, sub-stance or other matter of any kind whatsoever which is now or later defined, classified, listed, designated or regulated as hazardous, toxic or radioactive by any Governmental Agency.

Holiday: New Year's Day, Martin Luther King, Jr.'s Birthday, Presidents' Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, Christmas Day, any other holidays designated by an executive order of the President of the United States or by Act of Congress and any other days commonly recognized as holidays by other first-class office buildings in the Boston, Massachusetts metropolitan area.

Land: The land upon which the Building is located in Boston, Suffolk County, Commonwealth of Massachusetts.

Landlord: The limited liability company named on the first page of this Lease, or its successors and assigns as provided in the Section entitled "Assignment by Landlord".

Landlord's Agents: The managers, officers and employees of Landlord and the consultants and advisors to the Landlord and employees of the foregoing.

Lease Memorandum: Defined in the Section entitled "Lease Memorandum".

Lease Term or **Term**: The period commencing on the Commencement Date and ending on the last day of that calendar month which is one hundred twenty-three (123) months after the month that the Commencement Date occurs in, provided that, if the Commencement Date is the first day of a calendar month, the Lease Term shall end on the last day of the one hundred twenty-third (123rd) calendar month of the Lease Term, including the calendar month in which the Commencement Date occurs.

Lender: Defined in the Section entitled "Landlord's Default".

Manager: CB Richard Ellis - N.E. Partners, LP, or its replacement as specified by written notice from Landlord to Tenant.

Manager's Address: John F. Sullivan, RPA, CCIM, Vice President/General Manager, CBRE/New England, Asset Services, 101 Seaport Boulevard, 6th Floor, Boston, Massachusetts 02210, which address may be changed by written notice from Landlord to Tenant.

Operating Costs: Defined in the Section entitled "Additional Rent".

Operating Costs Allocable to the Premises: Defined in the Section entitled "Additional Rent".

Permitted Use: General business office use, so long as such use is consistent with Governmental Requirements and with first-class buildings of the same or similar use as the Building located in the metropolitan area in which the Building is located.

Person: A natural person, a partnership, a corporation or any other form of business or legal association or entity.

Prepaid Rent. One Hundred Eighty-Six Thousand Seventy-Nine and 16/100 Dollars ($186,079.16), to be applied toward Base Rent for the first full calendar month of the Lease Term or to the first full calendar month for which Base Rent is due.

Premises: Subject to Section 2.1.1, the entire ninth (9^{th}) floor of the Building, depicted on the plan attached hereto as Exhibit B and agreed by Landlord and Tenant for all purposes under this Lease to consist of approximately thirty thousand one hundred seventy-five (30,175) rentable square feet. The number of rentable square feet recited above shall be final, conclusive and controlling.

Prime Rate: Defined in the Section entitled "Default Rate".

Property Taxes: (a) Any form of ad valorem real or personal property tax or assessment imposed by any Governmental Agency on the Land, Building, related improvements or any personal property owned by Landlord associated with such Land, Building or improvements; (b) any other form of tax or assessment, license fee, license tax, tax or excise on rent or any other levy, charge, expense or imposition made or required by any Governmental Agency on any interest of Landlord in such Land, Building, related improvements or personal property; (c) any fee for services charged by any Governmental Agency for any services such as fire protection, street, sidewalk and road maintenance, refuse collection, school systems or other services provided or formerly provided to property owners and residents within the general area of the Land; (d) any governmental impositions allocable to or measured by the area of any or all of such Land, Building, related improvements or personal property or the amount of any base rent, additional rent or other sums payable under any lease for any or all of such Land, Building, related improvements or personal property, (e) any gross receipts or other excise tax allocable to, measured by or a function of any one or more of the matters referred to in clause (d); (f) any impositions by any Governmental Agency on any transaction evidenced by a lease of any or all of such Land, Building, related improvements or personal property or charge with respect to any document to which Landlord is a party creating or transferring an interest or an estate in any or all of such Land, Building, related improvements or personal property; (g) any increase in any of the foregoing based upon construction of improvements or change of ownership of any or all of such Land, Building, related improvements or personal property, and (h) tax consultant fees and expenses and costs of appeals of any Property Taxes. Property Taxes shall not include taxes on Landlord's net income, nor estate, succession, inheritance, gift, franchise, corporation and transfer taxes. Notwithstanding the foregoing, for purposes of Section 3.4 hereof, "Property Taxes" shall not include any Property Taxes, as defined above, assessed against or properly allocable to the Garage (as hereinafter defined).

Rent Commencement Date: The date that is three (3) months after the Commencement Date.

Rent Payment Address: MEPT Seaport 13 Stillings LLC
BLDG ID: 3521
P.O. Box 209265
Austin, Texas 78720-9265

Restrictions: Any covenants, conditions and restrictions applicable to and encumbering the Land as of the effective date of this Lease or which are thereafter placed upon the Land provided that they do not materially, adversely affect use of the Premises for the Permitted Use in accordance with the terms hereof.

Specialty Alterations: Any Tenant Improvements or Tenant Alterations which are not standard office installations including, without limitation, any curved walls, drywall ceilings, decorative soffits, full kitchens, raised flooring including, without limitation, raised computer room flooring and raised auditorium style seating/flooring, computer room installations, supplemental HVAC equipment, Telecommunications Facilities, safe deposit boxes, vaults, libraries or file rooms requiring reinforcement of floors, internal staircases, slab penetrations, conveyors, dumbwaiters, and other Tenant Improvements or Alterations of a similar character and/or incorporating unusual architectural elements. Specialty Alterations also shall be deemed to include all wiring and cabling installed by Tenant.

Telecommunication Facilities: Equipment, facilities, apparatus and other materials utilized for the purpose of electronic telecommunication, including cable, switches, wires, conduit and sleeves.

Telecommunication Services: Services associated with electronic telecommunications, whether in a wired or wireless mode, including basic voice telephone services.

Tenant: The person or entity(ies) named on the first page of this Lease and its permitted successors and assigns as provided herein.

Tenant Alterations: Defined in the Section entitled "Tenant Alterations".

Tenant Improvement Allowance: Defined in Exhibit C attached hereto.

Tenant Improvements: Defined in Exhibit C attached hereto.

Tenant's Agents: Any subtenant of Tenant and any and all officers, partners, contractors, subcontractors, consultants, licensees, agents, concessionaires, servants, employees, customers, guests, invitees or visitors of Tenant, of any subtenant of Tenant.

Tenant's Pro Rata Share: The percentage obtained by dividing the rentable square feet of the Premises by the rentable square feet of the Building. The rentable square feet of the Premises are 30,175 and the rentable square feet of the Building are 120,143. Therefore, Tenant's Pro Rata share is 30,175 /120,143 = twenty-five and 16/100 percent (25.16%). Landlord and Tenant stipulate that the number of rentable square feet in the Premises and in the Building set forth above is conclusive and shall be binding upon them.

Year: A calendar year commencing January 1 and ending December 31 or that portion of the calendar year within the Lease Term.

SECTION 2: PREMISES AND TERM

2.1 Lease of Premises.

2.1.1 Landlord leases the Premises to Tenant, and Tenant leases the Premises from Landlord, upon the terms and conditions set forth in this Lease. Notwithstanding anything herein to the contrary, not included in the Premises are the roof or ceiling, the floor and all perimeter walls, except the inner surfaces thereof, and the perimeter doors (except the entry doors) and windows in or on the ninth floor of the Building. In addition, notwithstanding anything herein to the contrary, not included in the Premises are the portions of the ninth floor of the Building used for shafts, stacks, pipes and conduits not serving the Premises, all mechanical, electrical and other utility rooms or closets located on such floor and all stairwells.

2.1.2 Subject to the Rules and Regulations (as hereinafter defined) and all other terms and conditions of this Lease, Tenant shall have, as appurtenant to the Premises, the non-exclusive right and license to use, and permit its invitees to use in common with Landlord and others, public or common lobbies, hallways, stairways, elevators and common walkways necessary for access to the Building and the Premises, and, if the portion of the Premises on any floor includes less than the entire floor, the common toilets, corridors and elevator lobby of such floor; and the loading areas, pedestrian sidewalks, landscaped areas, trash enclosures, and other areas or facilities, if any, which are located in or on the Building or the Land and designated by Landlord from time to time for the non-exclusive use of tenants and other occupants of the Building (collectively, the "Common Facilities").

2.2 Lease Term. The Lease Term shall be for the period stated in the definition of that term, unless earlier terminated as provided in this Lease.

2.3 Tender of Possession. Landlord and Tenant presently anticipate that possession of the Premises will be tendered to Tenant in the condition required by this Lease on or about August 15, 2018 (the "Estimated Delivery Date"). If Landlord is unable to tender possession of the Premises in such condition to Tenant by the Estimated Delivery Date, then, except as otherwise expressly provided in Section 2.4.2, (a) the validity of this Lease shall not be affected or impaired thereby, (b) Landlord shall not be in default hereunder or be liable for damages therefor, and (c) Tenant shall accept possession of the Premises when Landlord tenders possession thereof to Tenant. By occupying the Premises, Tenant shall be deemed to have accepted the Premises in their condition as of the date of such occupancy, subject to the performance of punch-list items that remain to be performed by Landlord, if any

2.4 Commencement Date.

2.4.1 The Commencement Date shall be the date set forth in the definition of that term in Section 1 hereof. Tenant acknowledges that the Premises shall be delivered in the condition required herein and that no representations or warranties as to the condition of the Premises have been made by Landlord. The taking of possession by Tenant shall establish that the Premises are in good and satisfactory condition when possession was so taken and the Commencement Date shall occur as provided in the definition of that term in Section 1 hereof. In no event shall Tenant's refusal or failure to take possession of the Premises delay or postpone the occurrence of the Commencement Date.

2.4.2 Notwithstanding the foregoing, if the Tenant Improvements are not Substantially Completed by the Completion Termination Date (as hereinafter defined), Tenant may terminate this Lease by delivering to Landlord written notice thereof at any time before the earlier of (1) ten (10) days following the Completion Termination Date or (2) the date on which the Tenant Improvements are Substantially Completed. The termination right afforded to Tenant under this Section 2.4.2 shall be Tenant's sole remedy for Landlord's failure to timely Substantially Complete the Tenant Improvements. Time is of the essence for the delivery of Tenant's termination notice under this Section 2.4.2; accordingly, if Tenant fails to timely deliver such notice, then Tenant's right to terminate this Lease under this Section 2.4.2 shall expire. As used herein, "Completion Termination Date" means the date that is one hundred (100) days plus the number of Tenant Delay Days plus the number of Force Majeure Delay Days (as hereinafter defined) after the Estimated Delivery Date. As used herein, "Force Majeure Delay Days" means each day of delay in achieving Substantial Completion of the Tenant Improvements for the reasons specified in Section 6.8 of this Lease.

2.5 **Early Entry**. Tenant shall be permitted entry into the Premises prior to the Commencement Date at such times designated by Landlord solely for the limited purpose of installing Tenant's furniture and Telecommunications Facilities, but any such entry or entries shall be at the Tenant's sole risk and subject to all of the terms and conditions of this Lease, except the obligation to pay Base Rent and escalations for Property Taxes and Operating Expenses. Tenant, however, shall be liable for payment of any above standard services (such as after-hours HVAC service) that are provided to Tenant during the period of Tenant's early access or possession prior to the Commencement Date).

2.6 **Lease Memorandum**. Within a reasonable period of time after the Commencement Date, Landlord may prepare and submit to Tenant a Lease Memorandum in the form of Exhibit D attached hereto, and solely with respect to the matters set forth in such form, completed in good faith by Landlord, and executed by Landlord. The information inserted on the Lease Memorandum shall be controlling and conclusive and shall prevail over any inconsistent provision in this Lease on (a) the mutual execution of the Lease Memorandum by Landlord and Tenant or (b) the lapse of seven (7) days following delivery of the Lease Memorandum to Tenant without Tenant delivering to Landlord a written objection to all or part of the information in the Lease Memorandum. If Tenant does object in good faith to any information set forth in the Lease Memorandum, it shall execute the Lease Memorandum subject to its specifically-stated, written objections. Tenant must explain the reasons for its objections in reasonable detail. That portion of the Lease Memorandum to which no objection was made shall be conclusive and controlling. Pending resolution of any dispute by agreement or a final determination by a court of competent jurisdiction in accordance with this Lease, Landlord's information as inserted in the Lease Memorandum shall be utilized subject to any later adjustment agreed or found to be appropriate. Tenant's refusal or failure to execute a Lease Memorandum shall neither prevent nor delay the occurrence of the Commencement Date. In no event shall the Lease Memorandum be recorded. Notwithstanding anything herein to the contrary, Tenant shall only be obligated hereunder to execute and deliver to Landlord a Lease Memorandum once during the Lease Term.

2.7 Use and Conduct of Business.

2.7.1 The Premises are to be used only for the Permitted Uses and for no other business or purpose without the prior consent of Landlord. Landlord makes no representation or warranty as to the suitability of the Premises for Tenant's intended use. Tenant shall, at its own cost and expense, obtain and maintain any and all licenses, permits, and approvals necessary or appropriate for its use, occupation and operation of the Premises for the Permitted Uses. Tenant's inability to obtain or maintain any such license, permit or approval necessary or appropriate for its use, occupation or operation of the Premises shall not relieve it of its obligations under this Lease, including the obligation to pay Base Rent and Additional Rent. Notwithstanding the foregoing, Landlord shall ensure that the common areas, facilities and systems of the Building are in compliance with all applicable Governmental Requirements, including all Access Laws. In the event that Tenant is unable to obtain a certificate of occupancy or otherwise access and use the Premises for the Permitted Use following completion of the Tenant Improvements because the common areas, facilities and systems of the Building are not in compliance with all applicable Governmental Requirements, including all Access Laws, Tenant shall immediately so notify Landlord in writing and Landlord shall use reasonable efforts to cause such violation to be corrected.

2.7.2 No act shall be done in or about the Premises that is unlawful or that will increase the existing rate of insurance on any or all of the Land or Building. Tenant shall not commit or allow to be committed or exist during the Term and any period thereafter that Tenant continues to occupy all or part of the Premises: (a) any waste upon the Premises, (b) any public or private nuisance, or (c) any act or condition which unreasonably disturbs the quiet enjoyment of any other tenant in the Building, violates any of Landlord's contracts affecting any or all of the Land or Building, creates or contributes to any work stoppage, strike, picketing, labor disruption or dispute, interferes in any material way with the business of Landlord or any other tenant in the Building or with the rights or privileges of any contractors, subcontractors, licensees, agents, concessionaires, subtenants, servants, employees, customers, guests, invitees or visitors or any other persons lawfully in and upon the Land or Building, or causes any material impairment or reduction of the good will or reputation of the Land or Building.

2.7.3 Tenant shall not, without the prior consent of Landlord, use any apparatus, machinery, device or equipment in or about the Premises which will cause any substantial noise or vibration or any material increase in the normal consumption level of electric power. If any of Tenant's apparatus, machinery, devices or equipment should disturb the quiet enjoyment of any other tenant in the Building and Landlord notifies Tenant thereof, then Tenant shall provide, at its sole cost and expense, adequate insulation or take such other action, including removing such apparatus, machinery, devices or equipment, as may be reasonably necessary to eliminate the disturbance. No food or beverage dispensing machines shall be installed by Tenant in the Premises without the prior written consent of Landlord, which consent shall not be unreasonably withheld, conditioned or delayed.

2.7.4 Tenant shall not use or operate the Premises in any manner that will cause the Building or any part thereof not to conform with Landlord's sustainability practices or the certification of the Building issued pursuant to any Green Agency Rating and the requirements set forth on Exhibit K attached hereto.

2.8 **Compliance with Governmental Requirements and Rules and Regulations**. Tenant shall comply with all Governmental Requirements and all Restrictions relating to its use, occupancy and operation of the Premises and shall observe such reasonable rules and regulations as may be adopted and published by Landlord from time to time for the safety, care and cleanliness of the Premises and the Building, and for the preservation of good order in the Building and for the administration and management of the Building. Current Rules and Regulations are attached to this Lease as Exhibit E.

2.9 **Parking.** During the Term, and any Extension Term, Landlord shall make available to Tenant, at no additional cost to Tenant (other than Parking Rent (as hereinafter defined)), not to exceed one (1) monthly parking pass per 1,333 rentable square feet of the Premises (the "Maximum Number of Parking Passes") for use in the parking garage located in the Building (the "Garage"). Each such parking pass (a "Parking Pass") shall permit Tenant or an Employee (as hereinafter defined) to park one (1) automobile in the Garage on an unassigned, non-reserved basis, on a 24 hour per day, 7 day per week basis, subject to conditions outside of Landlord's control.

The number of Parking Passes made available to Tenant hereunder for each calendar month during the Lease Term shall be as designated by Tenant in accordance with the following provisions of this Section 2.9, up to a maximum of the Maximum Number of Parking Passes at any one time. The number of Parking Passes made available to Tenant hereunder for the first full calendar month of the Lease Term (and any partial calendar month of the Lease Term preceding such first full calendar month) shall be as set forth in a notice from Tenant to Landlord no later than the date that is sixty (60) days after the Effective Date. If Tenant fails to timely notify Landlord as aforesaid, then the number of Parking Passes made available to Tenant hereunder for the first full calendar month of the Lease Term (and any partial calendar month of the Lease Term preceding such first full calendar month) shall be the Maximum Number of Parking Passes. Thereafter, at any time during the Lease Term, Tenant may increase or decrease the number of Parking Passes made available to Tenant hereunder (up to a maximum of the Maximum Number of Parking Passes at any one time) by giving Landlord written notice (a "Change Notice") of such increase(s) or decrease(s). Commencing on the first day of the second full calendar month following Landlord's receipt of a Change Notice, the number of Parking Passes made available to Tenant hereunder shall be the number designated in such Change Notice. Thereafter, the number of Parking Passes made available to Tenant hereunder shall be the number designated in the last received Change Notice (up to a maximum of the Maximum Number of Parking Passes), subject to increase or decrease as provided herein effective on the first day of the second full calendar month after Landlord's receipt of any subsequent Change Notice. Notwithstanding the foregoing, if, upon receipt by Landlord of a Change Notice, the number of parking spaces available for use in the Garage on a monthly basis is less than the number of Parking Passes requested in such Change Notice, then Landlord shall not be obligated to provide to Tenant more than that number of Parking Passes equal to the number of parking spaces then available for use in the Garage on a monthly basis.

For each calendar month during the Lease Term, Tenant shall pay Landlord (or, at Landlord's option, the Garage Operator (as hereinafter defined)) rent (the "Parking Rent") for each Parking Pass made available to Tenant for such calendar month at the rate being charged, from time to time, by Landlord or the Garage Operator for monthly unreserved parking (the "Prevailing Rate"), plus any applicable tax imposed thereon. The current (i.e., as of the Effective Date) Prevailing Rate for Parking Passes for monthly unreserved parking in the Garage is $440.00 per Parking Pass per month. The current (i.e., as of the Effective Date) Prevailing Rate for Parking Passes for monthly reserved parking in the Garage is $500.00 per Parking Pass per month on the first floor of the Garage and $470.00 per Parking Pass per month on the second floor of the Garage. The monthly Parking Rent shall be paid by Tenant to Landlord in accordance with Section 3.1 of this Lease. If, for any reason, Tenant shall fail to timely pay the monthly Parking Rent as provided in this Section 2.9 and such failure shall continue beyond the notice and cure period applicable to payments of rent under this Lease, then Tenant shall have no further right to use the Parking Passes under this Section 2.9 unless and until Tenant has cured such failure.

Neither Landlord nor the Garage Operator shall be responsible for money, jewelry, automobiles or other personal property lost in or stolen from the Garage regardless of whether such loss or theft occurs when the Garage or other areas therein are locked or otherwise secured against entry. Neither Landlord nor the Garage Operator shall be liable for any loss, injury or damage to persons using the Garage or automobiles or other property therein, it being agreed that, to the fullest extent permitted by applicable Governmental Requirements, the use of the Garage shall be at the sole risk of Tenant and its employees.

Landlord shall have the right from time to time to promulgate reasonable rules and regulations regarding the Garage, the parking spaces therein and the use thereof, including, but not limited to, rules and regulations controlling the flow of traffic to and from various parking areas, the angle and direction of parking and the like. Tenant shall comply with and shall cause its employees to comply with all such rules and regulations as well as all reasonable additions and amendments thereto.

Tenant shall not store (beyond normal daily or multi-day but short term (e.g., vacation) parking) or permit its employees to store (beyond normal daily or multi-day but short term (e.g., vacation) parking) any automobiles in the Garage without the prior written consent of Landlord. Except for emergency repairs, Tenant shall not perform any work, or permits its employees to perform any work, on any automobiles while located in the Garage. If it is necessary for Tenant or its employees to leave an automobile in the Garage overnight, Tenant or such Employee shall provide Landlord with prior notice thereof identifying the license plate number and model of such automobile.

Landlord shall have the right to temporarily close the Garage or certain areas therein in order to perform necessary repairs, maintenance and improvements to the Garage. Landlord shall use reasonable efforts to minimize the number, extent and duration of such closures.

Tenant shall have no right to sublet, assign, or otherwise transfer the Parking Passes (or any of them), and shall not permit any Parking Pass to be sublet, assigned or otherwise transferred, except (i) to its employees or (ii) in connection with an assignment or subletting permitted under the terms of this Lease (in the case of such a subletting, in reasonably proportionate numbers given the size of the subleased space). Landlord shall have the right to terminate Tenant's parking rights with respect to any Parking Pass that is sublet or assigned in violation of the preceding sentence.

Landlord may elect to provide parking cards or keys to control access to the Garage. In such event, Landlord shall provide Tenant with one card or key for each Parking Pass that Tenant has the right to use under this Section 2.9, provided that Landlord shall have the right to require Tenant to place a reasonable deposit on such access cards or keys and to pay a reasonable fee for any lost or damaged cards or keys.

Landlord hereby reserves the right to enter into a management agreement or lease with a Person for the operation of the Garage (the "Garage Operator"). In such event, Tenant, upon request of Landlord, shall enter into a commercially reasonable parking agreement with the Garage Operator and pay to the Garage Operator (rather than Landlord) the Parking Rent required to be paid under this Section 2.9. Notwithstanding the foregoing, no such parking agreement shall reduce the Maximum Number of Parking Passes. Landlord shall not have any liability for claims arising through acts or omissions of the Garage Operator. It is understood and agreed that the identity of the Garage Operator may change from time to time during the Term. In connection therewith, any parking lease or agreement entered into between Tenant and a Garage Operator shall be freely assignable by such Garage Operator or any successors thereto.

2.10 Sustainable Building Operations.

2.10.1 This Building is or may become in the future certified under certain Green Agency Ratings or operated pursuant to Landlord's sustainable building practices, as same may be in effect or modified from time to time. Landlord's sustainability practices address, without limitation, whole-building operations and maintenance issues including chemical use; indoor air quality; energy efficiency; water efficiency; recycling programs; exterior maintenance programs; and systems upgrades to meet green building energy, water, Indoor Air Quality, and lighting performance standards. Tenant shall endeavor to cause all of Tenant's construction and maintenance methods and procedures, material purchases, and disposal of waste to be in compliance with minimum standards and specifications as outlined by the Green Agency Ratings, and Tenant shall cause all such methods, procedures, purchases and disposal to be in compliance with all Governmental Requirements.

2.10.2 Tenant shall use reasonable efforts to: utilize proven energy and carbon reduction measures, including energy efficient bulbs in task lighting; use lighting controls; implement daylighting measures to avoid overlighting interior spaces; close shades on the south side of the Building to avoid over-heating the Premises; turn off lights and equipment at the end of the work day; purchase ENERGY STAR® qualified equipment, including but not limited to, lighting, office equipment, commercial and residential quality kitchen equipment, vending and ice machines; and purchase products certified by the U.S. EPA's Water Sense® program.

2.11 Recycling and Waste Management. Tenant covenants and agrees, at its sole cost and expense: (a) to comply with all present and future Governmental Requirements regarding the collection, sorting, separation, and recycling of garbage, trash, rubbish and other refuse generated by the users and occupants of the Premises (collectively, "trash"); (b) to use reasonable efforts to comply with Landlord's recycling policy, as stated in the Rules and Regulations (as such policy may be amended or supplemented from time to time), as part of Landlord's sustainability practices where it may be more stringent than applicable Governmental Requirements, including without limitation, recycling such categories of items designated by Landlord and transporting such items to any recycling areas designated by Landlord; (c) to sort and separate its trash and recycling into such categories as are provided by Governmental Requirements or Landlord's then-current sustainability practices; (d) place each separately sorted category of trash and recycling in separate receptacles as reasonably directed by Landlord; (e) that Landlord reserves the right to refuse to collect or accept from Tenant any trash or recycling that is not separated and sorted as required by Governmental Requirements, and to require Tenant to arrange for such collection at Tenant's sole cost and expense, utilizing a contractor reasonably satisfactory to Landlord; and (f) that Tenant shall pay all costs, expenses, fines, penalties or damages that may be imposed on Landlord or Tenant by any Governmental Agency by reason of Tenant's failure to comply with the provisions of this Section 2.11.

SECTION 3: BASE RENT, ADDITIONAL RENT AND OTHER SUMS PAYABLE UNDER LEASE

3.1 **Payment of Rental**. Except for and to the extent of any rent abatement expressly provided for hereunder, Tenant agrees to pay Base Rent, Additional Rent and any other sum due under this Lease to Landlord without demand, deduction, credit, adjustment or offset of any kind or nature, in lawful money of the United States when due under this Lease, at the Rent Payment Address, or to such other party or at such other place as Landlord may from time to time designate in writing.

3.2 **Base Rent**. Simultaneously with the execution and delivery of this Lease by Tenant, Tenant shall pay to Landlord the amount specified in the definition of Prepaid Rent for the month specified in the definition of that term. Tenant agrees to pay the monthly installments of Base Rent to Landlord, without demand and in advance, on or before the first day of each calendar month of the Lease Term. The monthly Base Rent installment payable hereunder for any partial month at the beginning or end of the Lease Term shall be prorated. Base Rent payable hereunder for any partial month at the beginning of the Lease Term shall be paid by Tenant on the Commencement Date.

3.3 **Base Rent Abatement**. The "Rent Abatement Period" shall mean the period commencing on the Commencement Date and ending on the day prior to the Rent Commencement Date. Notwithstanding anything herein to the contrary, Landlord agrees not to demand or collect, and Tenant shall have no obligation to pay, monthly Base Rent or Additional Rent payable under Section 3.4 below for the Rent Abatement Period.

3.4 **Additional Rent**. Definitions of certain terms used in this Section 3.4 are set forth in subsection 3.4.6. Tenant agrees to pay to Landlord additional rent as computed in this Section 3.4 (individually and collectively, "Additional Rent"):

3.4.1 **Estimated Operating Costs**. For each Year during the Lease Term, Tenant shall pay to Landlord, as Additional Rent, one-twelfth (1/12) of the amount, if any, by which the Estimated Operating Costs Allocable to the Premises for such Year exceeds the Base Amount Allocable to the Premises. This amount for each Year (the "Monthly Estimated Amount") shall be paid in advance on or before the first day of each calendar month of such Year. Landlord shall furnish Tenant a written statement of Estimated Operating Costs Allocable to the Premises for each Year in advance of the commencement of such Year. However, if Landlord fails to furnish Tenant such written statement for a Year prior to the commencement of such Year, then Tenant shall continue to pay Landlord in advance on or before the first day of each calendar month of such Year the Monthly Estimated Amount for the prior Year until Landlord furnishes Tenant such written statement for such Year. Notwithstanding the foregoing, Landlord reserves the right, from time to time during each Year, to reasonably revise the Estimated Operating Costs Allocable to the Premises, and, upon notice to Tenant of such revision, Tenant shall adjust its payment to Landlord under this subsection 3.4.1 accordingly.

3.4.2 **Actual Costs**. After the close of each Year, Landlord shall deliver to Tenant a written statement setting forth in reasonable line item detail the Operating Costs Allocable to the Premises during the preceding Year. Landlord shall exercise commercially reasonable efforts to deliver such statement to Tenant within one hundred twenty (120) days after the close of each Year, but the failure to do so shall not affect Tenant's obligations hereunder. If such Operating Costs Allocable to the Premises for any Year exceed the Estimated Operating Costs Allocable to the Premises paid by Tenant to Landlord pursuant to subsection 3.4.1 for such Year, Tenant shall pay the amount of such excess to Landlord within twenty (20) Business Days after receipt of such statement by Tenant. If such statement shows the Operating Costs Allocable to the Premises to be less than the Estimated Operating Costs Allocable to the Premises paid by Tenant to Landlord pursuant to subsection 3.4.1, then the amount of such overpayment shall be paid by Landlord to Tenant within twenty (20) Business Days following the date of such statement or, at Landlord's option, shall be credited towards the installment(s) of Additional Rent next coming due from Tenant.

3.4.3 **Determination**. The determination of Operating Costs Allocable to the Premises (as hereinafter defined) shall be made in good faith by Landlord.

3.4.4 **End of Term**. If this Lease shall terminate on a day other than the last day of a Year, (a) Landlord shall estimate the Operating Costs Allocable to the Premises and Property Taxes Allocable to the Premises for such Year predicated on the most recent reliable information available to Landlord; (b) the amount determined under clause (a) of this sentence shall be prorated by multiplying such amount by a fraction, the numerator of which is the number of days within the Lease Term in such Year and the denominator of which is 365; (c) the Operating Costs Base Amount Allocable to the Premises shall be prorated in the manner described in clause (b); (d) the clause (c) amount (i.e., the prorated Operating Costs Base Amount Allocable to the Premises) shall be deducted from the clause (b) amount (i.e., the prorated Operating Costs Allocable to the Premises); (e) if the clause (d) amount exceeds the Estimated Operating Costs Allocable to the Premises paid by Tenant for the last Year in the Lease Term, then Tenant shall pay the excess to Landlord within twenty (20) Business Days after Landlord's delivery to Tenant of a statement for such excess; and (f) if the Estimated Operating Costs Allocable to the Premises paid by Tenant for the last Year in the Lease Term exceeds the clause (d) amount, then Landlord shall refund to Tenant the excess (less any amounts then owed by Tenant to Landlord) within the twenty (20) Business Day period described in clause (e). Landlord's and Tenant's obligations under this Section 3.4 shall survive the expiration or other termination of this Lease.

3.4.5 Definitions. Each underlined term in this subsection 3.4.5 shall have the meaning set forth next to that underlined term:

Operating Costs Base Amount Allocable to the Premises: The Operating Costs Allocable to the Premises for the Base Year. For the initial Lease Term, the "Base Year" is the year beginning January 1, 2018 and ending December 31, 2018.

Estimated Operating Costs Allocable to the Premises: Landlord's reasonable estimate of Operating Costs Allocable to the Premises for a Year to be given by Landlord to Tenant pursuant to subsection 3.4.1.

Operating Costs: All expenses paid or incurred by Landlord for maintaining, operating, owning and repairing any or all of the Land, Building, Premises, related improvements, and the personal property used in conjunction with such Land, Building, Premises and related improvements, except for Property Taxes. Included are all expenses paid or incurred by Landlord for: (a) utilities, including electricity, water, gas, sewers, fire sprinkler charges, refuse collection, Telecommunication Services, cable television, steam, heat, cooling or any other similar service and which are not payable directly by tenants in the Building; (b) supplies; (c) cleaning, painting and janitorial services (including window washing), landscaping and landscaping maintenance (including irrigating, trimming, mowing, fertilizing, seeding and replacing plants), snow removal and other services; (d) security services, if any; (e) insurance premiums and applicable insurance deductible payments by Landlord; (f) commercially reasonable management fees; (g) compensation (including employment taxes and fringe benefits) of all persons (at or below the level of property manager or building supervisor) and business organizations who perform duties in connection with any service, repair, maintenance, replacement or improvement or other work included in this subsection; (h) license, permit and inspection fees; (i) assessments and special assessments due to deed restrictions, declarations or owners associations or other means of allocating costs of a larger tract of which the Land is a part; (j) rental of any machinery or equipment; (k) accounting services related to the Building, and charges for the computation of the rents and charges payable by tenants in the Building (but only to the extent the cost of such fees and services are in addition to the cost of the management fee); (l) the cost of repairs or replacements; (m) charges under maintenance and service contracts; (n) legal fees and other expenses of legal or other dispute resolution proceedings that benefit Building tenants generally; (o) maintenance and repair of the roof and roof membranes, (p) costs incurred by Landlord for compliance with any and all Governmental Requirements, including Access Laws, and to increase the efficiency of any electrical, mechanical or other system servicing the Building or the Land; (q) elevator service and repair, if any; (r) business taxes and license fees; (s) any other expense or charge which in accordance with generally accepted accounting and management principles would be considered an expense of maintaining, operating, owning or repairing the Building; (t) insurance endorsements or insurance policies purchased in order to repair, replace and re-commission the Building for re-certification pursuant to any Green Agency Rating (or, in the event the Building has not achieved any certification under any Green Agency Rating, such insurance that is purchased in order to facilitate rebuilding the building upon a casualty so as to achieve such certification) or support achieving energy and carbon reduction targets; (u) all costs of maintaining, managing, reporting, commissioning, and recommissioning the Building or any part thereof that was designed and/or built to be sustainable and conform with any commissioning the Building or any part thereof to seek certification under any Green Agency Rating (the costs and expenses described in this item (t) are collectively referred to herein as the "Green Agency Rating Costs" and such Green Agency Rating Costs shall in no event exceed five percent (5%) of the total Operating Costs (net of Property Taxes) in any Year); and (u) the amortization of Includable Capital Costs in accordance with the next sentence. "Includable Capital Costs" means and refers to any costs which are required to be capitalized under generally accepted accounting principles to the extent such costs are for (1) reducing or avoiding increases in Operating Costs in Landlord's good faith estimate, (2) replacing, modifying and/or adding improvements or equipment mandated by any Governmental Requirement either enacted or which takes effect after the date of this Lease or as a result of any new interpretation adopted by governmental authorities after the Commencement Date and any repairs, disposals or removals necessitated thereby (including, but not limited to, the cost of complying with Access Laws), or (3) any other items necessary to carry out Landlord's maintenance, repair, replacement and other obligations under this Lease. Includable Capital Costs shall be amortized with interest return at the Prime Rate plus two (2) percentage points over the estimated useful life of the capital improvement as determined by Landlord and the annual amortization of principal and interest attributable to the Lease Term shall be an Operating Cost.

Exclusions from Operating Costs: Operating Costs shall not include any of the following:

(i) ground rent;

(ii) capital expenditures required to be capitalized in accordance with generally accepting accounting principles, other than Includable Capital Costs (the amortization of which shall be included in Operating Costs as provided above):

(iii) interest and amortization of funds borrowed by Landlord for items other than Includable Capital Costs;

(iv) leasing commissions and advertising and space planning and improvement expenses incurred in procuring tenants;

(v) salaries, wages, or other compensation paid to officers or executives of Landlord in their capacities as officers and executives;

(vi) costs incurred in connection with the making of repairs or replacements which are the obligation of another tenant or occupant of the Building;

(vii) costs of any item which is reimbursed to Landlord by other tenants or third parties;

(viii) any utility or other service used or consumed in the premises leased or leasable to any tenant or occupant, including, without limitation, gas, electricity, water, and sewer, if Tenant's use or consumption of such utility or other services is separately metered or sub-metered at the Premises or Tenant is charged a separate amount therefor;

(ix) costs incurred in connection with Landlord's preparation, negotiation, dispute resolution and/or enforcement of leases;

(x) costs of any additions to or expansions of the Building to the extent such costs and expenses are for the construction of additional leasable area;

(xi) costs of repairs, restoration or replacements occasioned by Casualty (excluding Landlord's deductibles) or caused by the exercise of the right of eminent domain to the extent Landlord is actually paid or reimbursed by insurance or condemnation proceeds;

(xii) the cost to make improvements, alterations and additions to the Building which are incurred by Landlord because the Building or common areas violate any valid, applicable Governmental Requirement in effect and as interpreted by governmental authorities as of the Commencement Date;

(xiii) costs incurred to comply with Governmental Requirements relating to the investigation, monitoring and/or removal of Hazardous Substances which (i) were in existence in the Building or on the Land prior to the date hereof (but specifically excluding Permitted Hazmat Costs, as defined below), and were of such a nature that a federal, state or municipal governmental authority, if it had then had knowledge of the presence of such Hazardous Substances, in the state, and under the conditions that they then existed in the Building or on the Land, would have then required the removal of such Hazardous Substances or other remedial or containment action with respect thereto, or (ii) were caused by Landlord or Landlord's Agents (but specifically excluding Permitted Hazmat Costs), or (iii) are actually recovered by Landlord from a third party who was responsible for introducing any such Hazardous Substances to the Building or the Land. Landlord shall use commercially reasonable efforts to recover the foregoing described costs related to Hazardous Substances from any identified third party that caused same, provided that in no event shall Landlord be required to initiate litigation against such party. As used herein, "Permitted Hazmat Costs" means and refers to all costs and expenses incurred by Landlord in connection with the acquisition, storage, handling, removal and disposal of any Hazardous Substances used by Landlord in the ordinary course of business and in compliance with applicable Governmental Requirements in maintaining, operating, servicing, repairing and replacing any equipment at the Building or on the Land, all of which shall be included in Operating Costs;

(xiv) any costs in the nature of fees, fines or penalties arising out of Landlord's breach of any obligation (contractual or at law, and including, without limitation, costs, fines, interest, penalties and costs of litigation incurred as a result of late payment of taxes and/or utility bills), including attorneys' fees related thereto;

(xv) amounts paid to subsidiaries or affiliates of Landlord for services rendered to the Building or the Land to the extent such amounts exceed the competitive costs for delivery of such services were they not provided by such related parties;

(xvi) the cost of installing, operating and maintaining any commercial concession operated by Landlord for profit, such as an observatory, broadcasting facility, luncheon club, theater, cafeteria, convenience store, or exercise facility, except to the extent such concessions are subsidized by Landlord for the benefit of all tenants;

(xvii) any rental of equipment which, if purchased, would not be includable in Operating Costs;

(xviii) costs incurred in connection with the initial construction and development of the Building, parking areas or other improvements, or repair of defects in such initial construction;

(xix) costs of selling, syndicating, financing, mortgaging or hypothecating any of Landlord's interest in the Building or the Land;

(xx) costs of any disputes between Landlord and its employees, or outside fees paid in connection with disputes with adjacent property owners which are not intended to benefit tenants of the Building generally;

(xxi) Landlord's general corporate overhead and general administrative expenses, which would not be chargeable to operating expenses of the Building, determined in accordance with generally accepted accounting principles, consistently applied; and all costs related to maintaining Landlord's existence as a corporation, limited liability company or other entity;

(xxii) contributions to political or charitable organizations;

(xxiii) costs properly attributable to the maintenance and repair of the Garage; and

(xxiv) the cost of any special service provided to a particular tenant of the Building but not to tenants of the Building generally.

Gross-Up Provision: If less than ninety-five percent (95%) of the net rentable area of the Building is occupied by tenants at all times during any Year (including the Base Year), then Operating Costs for such Year which vary with occupancy of the Building shall, for purposes of this Section 3.4, be increased to the amount which would have been incurred had ninety-five percent (95%) of the Building been occupied at all times during such Year by tenants.

Operating Costs Allocable to the Premises: The product of Tenant's Pro Rata Share times Operating Costs (net of Property Taxes).

Property Tax Base Amount: Tenant's Pro Rata Share of Property Taxes payable for the Tax Base Year. For the initial Lease Term, the "Tax Base Year" is the fiscal tax year 2019 (beginning July 1, 2018 and ending June 30, 2019).

Property Taxes Allocable to the Premises: Tenant's Pro Rata Share of Property Taxes.

Qualified Person: This means an accountant or other person experienced in accounting for income and expenses of office projects, who is engaged solely by Tenant on terms which do not entail any compensation based or measured in any way upon any savings in Additional Rent or reduction in Operating Costs Allocable to the Premises achieved through the inspection process described in this subsection.

3.4.6 **Property Tax Escalation**. In addition to the payments required by the foregoing provisions of this Section 3.4, Tenant shall pay as Additional Rent to Landlord one-twelfth (1/12) of the amount, if any, by which (a) Landlord's estimate of the Property Taxes Allocable to the Premises for the current tax year exceeds the Property Tax Base Amount. This sum shall be paid in advance on or before the first day of each calendar month of the Lease Term. Notwithstanding the foregoing, Tenant shall have no obligation to pay Additional Rent required under this Section 3.4.7 prior to the date that is twelve (12) months after the Commencement Date. After the close of each tax year during the Lease Term, Landlord shall deliver to Tenant a written statement setting forth (1) the actual Property Taxes Allocable to the Premises for the preceding tax year, (2) the difference between the amount referred to in clause (1) and the Property Tax Base Amount and (3) the differential between the amount referred to in clause (2) and the sum of the tentative monthly payments toward such amount made by Tenant. If the differential referred to in clause (3) of the previous sentence represents an underpayment by Tenant, such differential shall be paid to Landlord within twenty (20) Business Days after delivery of Landlord's written statement to Tenant. If such differential represents an overpayment by Tenant, Landlord shall, at its option, either credit such overpayment to the installment(s) of Additional Rent next coming due from Tenant or refund such overpayment to Tenant within twenty (20) Business Days after Tenant's concurrence in the amount due as a refund. If the Lease Term begins or ends on a day other than the beginning or end of a tax year, the amount due as described in clause (2) of this subsection shall be prorated on a per diem basis with reference to the tax year. The provisions of this subsection shall survive the expiration or other termination of this Lease.

3.4.7 **Tenant's Costs**. Tenant agrees to reimburse or pay Landlord within twenty (20) Business Days after invoice from Landlord for (a) any expenses incurred by Landlord for janitorial services, including, without limitation, carpet cleaning, garbage and trash removal, over and above the normal janitorial services provided by Landlord pursuant to Section 4.1.3, (b) any expense incurred by Landlord for usage in the Premises of heating, ventilating and air conditioning services, elevator services, electricity, water, janitorial services, or any other services or utilities over and above the normal usage for the Premises, (c) any expense incurred by Landlord relating to or arising out of the usage by Tenant or Tenant's Agents of the public or common areas of the Building or Land, or any of the equipment contained therein, which usage is over and above the normal usage for such public or common areas or equipment, and (d) any other direct expense incurred by Landlord on Tenant's behalf. Landlord reserves the right to install and activate separate metering of electricity, water or other utilities to the Premises, and Tenant agrees to reimburse or pay Landlord within twenty (20) Business Days after invoice from Landlord for all costs of such separate metering, in which case the Operating Costs Base Amount Allocable to the Premises and Operating Costs shall be adjusted accordingly.

3.4.8 **Operating Cost Audit**. Landlord shall maintain records concerning estimated and actual Operating Costs Allocable to the Premises for no less than eighteen (18) months following the period covered by the statement or statements furnished Tenant, after which time Landlord may dispose of such records. Provided that no Event of Default has occurred and is continuing, Tenant may, at Tenant's sole cost and expense, cause a Qualified Person (defined above) to inspect Landlord's records for the prior Year. Such inspection, if any, shall be conducted no more than once each Year, during Landlord's normal business hours within one hundred twenty (120) calendar days after receipt of Landlord's written statement of Operating Costs Allocable to the Premises for the previous Year, upon first furnishing Landlord at least twenty (20) Business Days prior written notice. In no event shall Tenant be permitted to inspect Landlord's records for any particular Year more than once. As a condition to Tenant's right to conduct such inspection, Tenant agrees (i) to promptly furnish Landlord (at Tenant's cost) with a copy of the report of Tenant's inspection of Landlord's records, and (ii) except as required by applicable Governmental Requirements, that neither Tenant nor any of Tenant's Agents shall divulge the contents of Landlord's records or the results of its inspection to any third party. Any errors disclosed by the inspection shall be promptly corrected by Landlord; provided, however, that if Landlord disagrees with any such claimed errors, Landlord shall have the right to cause another inspection to be made by an auditor of Landlord's choice. In the event the results of the inspection (taking into account, if applicable, the results of any additional inspection caused by Landlord) reveal that Tenant has overpaid obligations for a preceding period, the amount of such overpayment shall be paid by Landlord to Tenant within thirty (30) days following such inspection or, at Landlord's option (except after the expiration of the Lease Term), credited against Tenant's subsequent installment(s) of Operating Costs Allocable to the Premises due to Landlord under the Lease. In the event that such results show that Tenant has underpaid its obligations for a preceding period, the amount of such underpayment shall be paid by Tenant to Landlord with the next succeeding installment obligation of estimated Operating Costs Allocable to the Premises (except after the expiration of the Lease Term, in which case Tenant shall pay Landlord the amount of such underpayment within thirty (30) days following such examination). Tenant shall pay the cost of such inspection, unless the total Operating Costs Allocable to the Premises for the Year in question is determined to be in error by more than ten percent (10%) in the aggregate, and, as a result thereof, Tenant paid to Landlord more than the actual Operating Costs Allocable to the Premises due for such Year, in which case Landlord shall pay the cost of such inspection not to exceed the amount Tenant was overcharged for the Year in question).

3.4.9 **Payments Deemed Additional Rent**. Any sums payable under this Lease pursuant to this Section 3.4 or otherwise shall be Additional Rent and, in the event of nonpayment of such sums, Landlord shall have the same rights and remedies with respect to such nonpayment as it has with respect to nonpayment of the Base Rent due under this Lease.

3.5 **Utilities**

3.5.1 Landlord shall have the right from time to time to select the company or companies providing electricity, gas, fuel, one or more categories of Telecommunication Services and any other utility services to the Building. Landlord reserves the right to change electricity providers for the Building at any time and to purchase green or renewable energy. At Landlord's option, electricity service for lights, plugs and to power HVAC equipment shall either be (a) separately metered to the Premises and separately accounted for and billed to Tenant by the utility provider or (b) measured by a check meter and separately accounted for and billed to Tenant by Landlord, in which case Tenant shall pay Landlord for such electricity as and when billed by Landlord. The direct meter or check meter for such electricity, as applicable, shall be installed by Landlord, at Landlord's expense. With the exception of water and sewer and HVAC service (and electricity if Landlord elects to measure Tenant's electricity consumption by check meter as provided above), Tenant shall contract directly and pay for all utilities used on or from the Premises together with any taxes, penalties, surcharges or similar charges relating to such utilities. If any such service other than electricity (electricity being billed as provided above) is not separately metered to the Premises or is not otherwise separately accounted for and billed to Tenant by the utility provider, then, at Landlord's option, the cost therefor shall either be (a) paid by Tenant to Landlord or (b) included as an Operating Cost under this Lease.

3.5.2 Tenant acknowledges that space on the Building rooftop and in Building risers, equipment rooms and equipment closets is limited. If Tenant requires Telecommunication Services for the Premises other than from the provider or providers of Telecommunication Services selected by Landlord and whose Telecommunication Facilities are installed in or about the Building or on the rooftop of the Building, provision for alternate or supplemental Telecommunication Services or Telecommunication Facilities has been made in a license agreement accompanying and made part of this Lease. Unless otherwise required by applicable Governmental Requirements, neither Tenant, nor a provider of Telecommunication Services to Tenant, in the future shall be entitled to locate or install Telecommunication Facilities in, on or about the Building without (a) first obtaining Landlord's advance, written consent (given in its absolute discretion) and (b) the advance execution by Landlord and Tenant of a satisfactory agreement granting a license to Tenant for such purposes and setting forth the scope, the additional rent, if any, royalties and the other terms and conditions of that license, and (c) Tenant negotiating and obtaining the right, if any is required, to bring such Telecommunication Facilities across public or private property to an approved entry point to the Building. The agreement referred to in clause (b) of the previous sentence shall be incorporated in and become part of this Lease. Any future application by Tenant for permission to locate or install Telecommunication Facilities shall (1) be in such form and shall be accompanied by such supporting information as the Landlord may require, (2) be subject to such procedures, regulations and controls as the Landlord may specify and (3) be accompanied by such payment as the Landlord may reasonably request to reimburse Landlord for its costs of evaluating and processing the application and in negotiating and preparing the agreement described earlier in this subsection.

3.5.3 Landlord shall in no case be liable or in any way be responsible for damages or loss to Tenant arising from the failure of, diminution of or interruption in electrical power, natural gas, fuel, Telecommunication Services, sewer, water, or garbage collection services, other utility service or building service of any kind to the Premises, unless such interruption in, deprivation of or reduction of any such service was caused by the negligence or willful misconduct of Landlord, its agents or contractors or by a failure in facilities, equipment or systems in the Landlord's ownership. To the extent that Landlord bears any responsibility hereunder for any such interruption, deprivation or reduction in utility or building services to the Premises, Landlord's responsibility and Tenant's remedy shall be limited to an abatement in Base Rent and Additional Rent on account of Operating Costs and Property Taxes for the period beginning with (a) the day which is four (4) consecutive Business Days after the date on which Tenant delivers notice to Landlord of such interruption, deprivation or reduction, provided that such interruption, deprivation or reduction deprives Tenant of reasonable use of a substantial portion of the Premises, and ending on (b) the date that such interruption, deprivation or reduction which is Landlord's responsibility hereunder is no longer causing Tenant to be deprived of reasonable use of a substantial portion of the Premises.

3.5.4 HVAC service shall be provided to the Premises Mondays through Fridays, except Holidays, from 8:00 am. to 6:00 p.m.("Building Standard Hours"), in accordance with the specifications attached hereto as Exhibit J. Landlord shall provide HVAC service at times in addition to Building Standard Hours ("After-Hours HVAC"); provided, however, Tenant gives Landlord notice prior to 1:00 p.m. on the same day such After-Hours HVAC is required with respect to service on Business Days and prior to 1:00 p.m. on the immediately preceding Business Day with respect After-Hours HVAC on non-Business Days. The charge to Tenant for After-Hours HVAC shall be at Landlord's then-standard hourly rate in effect from time to time for After-Hours HVAC (which rate is currently $35.00 per hour per floor and is subject to change from time to time); provided, however there will be no charge for After-Hours HVAC on Saturdays, except Holidays, between 9:00 AM and 1:00 PM (although Tenant must request same as set forth in the preceding sentence). Any HVAC service on Holidays shall be considered After-Hours HVAC.

3.5.5 Tenant shall not install any supplemental HVAC, space heaters or other utilities or energy-intensive equipment ("Supplemental Utilities Equipment") in the Premises without Landlord's prior written consent. In the event that Landlord consents in writing to such installation, Tenant shall be responsible, all at its sole cost and expense, for the installation, maintenance, and repair of any of Supplemental Utilities Equipment, and, at Landlord's election, shall remove same from the Premises upon the expiration or termination of the Lease Term at Tenant's sole cost and expense. Tenant agrees that it will maintain and repair any Supplemental Utilities Equipment, and major components thereof, in first-class condition, and any such equipment will be operated on sensors or timers that limit the operation of such Supplemental Utilities Equipment to hours of occupancy in the areas immediately adjacent to the occupying personnel. Tenant shall, at its sole cost and expense, enter into a regularly scheduled preventative maintenance/service contract with a maintenance contractor or the seller of any such Supplemental Utilities Equipment, and upon Landlord's reasonable request, Tenant will provide Landlord with reasonable evidence of such maintenance and repair. Upon Landlord's request, at reasonable times and upon prior notice to Tenant (except in the event of an emergency, where no notice is required), Landlord shall have the right to inspect the aforementioned Supplemental Utilities Equipment and major components provided Landlord shall use commercially reasonable efforts to minimize Landlord's interference with Tenant's business, Tenant shall not permit any Supplemental Utilities Equipment to disturb or interfere with any of the Building's systems or any other tenant in the Building, and Tenant will remove, at Tenant's sole cost and expense, any such Supplemental Utilities Equipment at Landlord's direction in the event of such disturbance or interference. Landlord reserves the right to separately submeter (or cause Tenant to separately submeter) any Supplemental Utilities Equipment, all at Tenant's sole cost and expense. In the event that any Supplemental Utilities Equipment is required to be removed from the Premises by Tenant pursuant to the terms of this subsection 3.5.5, Tenant shall be responsible to Landlord for any damage caused to the Premises or Building in connection therewith.

3.5.6 Tenant shall be required to submit to Landlord any electricity consumption data and costs in a format available to Tenant without additional cost.

3.5.7 Landlord's failure to furnish, or any interruption, termination or suspension of, services required to be furnished by Landlord under this Lease (a "Service Failure") shall not render Landlord liable to Tenant, constitute a constructive eviction of Tenant, give rise to an abatement of rent, except as expressly provided below, nor relieve Tenant from the obligation to fulfill any covenant or agreement. If the Premises, or a material portion of the Premises, is made untenantable for a period in excess of four (4) consecutive Business Days as a result of a Service Failure not caused by Tenant or any Tenant's Agent, then Tenant, as its sole remedy, shall be entitled to receive an abatement of Base Rent payable hereunder during the period beginning on the fifth consecutive Business Day of the Service Failure and ending on the day the applicable service has been restored. However, if the entire Premises has not been rendered untenantable by the Service Failure, the amount of abatement that Tenant is entitled to receive hereunder shall be prorated based upon the percentage of the Premises rendered untenantable and not used by Tenant.

3.6 **Holdover**. Tenant is not authorized to hold over beyond the expiration or earlier termination of the Lease Term. If Tenant holds over, Tenant shall be a tenant at sufferance. During such holding over, Tenant shall pay to Landlord Base Rent equal to the greater of (i) one hundred fifty percent (150%) of the rate of Base Rent in effect on the expiration or termination of the Lease Term and (ii) one hundred fifty percent (150%) of the prevailing rental rate in the Building for similar space, plus all Additional Rent and other sums payable under this Lease. Tenant also shall be bound by all of the other covenants and conditions specified in this Lease, so far as applicable. If Landlord does not consent to the Tenant's remaining in possession, Landlord shall have all the rights and remedies provided for by law and this Lease, including the right to recover consequential damages suffered by Landlord in the event of Tenant's wrongful refusal to relinquish possession of the Premises. Notwithstanding the foregoing, Tenant shall have no liability under this Section 3.6 for consequential damages if Tenant vacates and surrenders possession of the Premises in accordance with Section 4 hereof within forty-five (45) days after the expiration or earlier termination of the Lease Term.

3.7 **Late Charge**. If Tenant fails to make any payment of Base Rent, Additional Rent or other amount when due under this Lease, a late charge is immediately due and payable by Tenant equal to five percent (5%) of the amount of any such payment. Landlord and Tenant agree that this charge compensates Landlord for the administrative costs caused by the delinquency. The parties agree that Landlord's damage would be difficult to compute and the amount stated in this Section 3.7 represents a reasonable estimate of such damage. Assessment or payment of the late charge contemplated in this Section 3.7 shall not excuse or cure any Event of Default or breach by Tenant under this Lease or impair any other right or remedy provided under this Lease or under law. Notwithstanding the foregoing, no late charge shall be due or payable with respect to the first late payment in any twelve (12) month period during the Lease Term provided that Tenant makes payment within three (3) Business Days after receipt of written notice from Landlord.

3.8 **Default Rate**. Any Base Rent, Additional Rent or other sum payable under this Lease which is not paid when due shall bear interest at a rate equal to the lesser of: (a) the published prime or reference rate then in effect at a national banking institution designated by Landlord (the "Prime Rate"), plus four (4) percentage points, or (b) the maximum rate of interest per annum permitted by applicable law (the "Default Rate"), but the payment of such interest shall not excuse or cure any Event of Default or breach by Tenant under this Lease or impair any other right or remedy provided under this Lease or under law.

SECTION 4: MANAGEMENT AND LEASING PROVISIONS

4.1 Maintenance and Repair by Landlord.

4.1.1 Subject to the Sections entitled "Damage or Destruction" and "Condemnation", Landlord shall maintain the roof, structural elements, common building systems and equipment and the public and common areas of the Building in reasonably good order and condition subject to reasonable wear and tear. Landlord shall make such repairs thereto as become necessary after obtaining actual knowledge of the need for such repairs. All repair costs shall be included in Operating Costs unless expressly excluded in subsection 3.4.5 hereof, except for damage occasioned by the act or omission of Tenant or Tenant's Agents which shall be paid for entirely by Tenant upon demand by Landlord. In the event any or all of the Premises becomes in need of maintenance or repair which Landlord is required to make under this Lease, Tenant shall promptly give written notice to Landlord, and Landlord shall not be obligated in any way to commence such maintenance or repairs until a reasonable time elapses after Landlord's receipt of such notice.

4.1.2 Landlord shall not be liable by reason of any injury to or interference with Tenant's business arising from the making of any repairs, alterations, additions or improvements in or to the Premises or the Building or to any appurtenances or equipment therein. Subject to the foregoing, Landlord shall use commercially reasonable efforts to minimize any such injury or interference. Except as and to the extent expressly provided in subsection 3.5.3 hereof, there shall be no abatement of rent because of such repairs, alterations, additions or improvements or because of any delay by Landlord in making the same.

4.1.3 During the Lease Term, Landlord shall furnish janitorial services to the Premises on weekdays, other than Holidays, in accordance with the specifications attached hereto as Exhibit I or such other specifications established by Landlord from time to time, provided that the janitorial services provided for under such other specifications are comparable to the janitorial services then being provided by landlords to tenants in similar office buildings in Boston, Massachusetts.

4.2 Maintenance and Repair by Tenant.

4.2.1 Except as is expressly set forth as Landlord's responsibility pursuant to the Section entitled "Maintenance and Repair by Landlord," Tenant shall, at Tenant's sole cost and expense, keep clean and maintain the Premises in good condition and repair, including interior painting, plumbing and utility fixtures and installations located in the Premises, carpets and floor coverings, all interior wall surfaces and coverings (including tile and paneling), window replacement (excluding exterior windows), entry and interior doors, roof penetrations and membranes in connection with any Tenant installations on the roof, light bulb replacement (which lighting purchases must comply with Landlord's sustainability practices and shall be reported to Landlord in a format suitable to Landlord) and interior preventative maintenance. All maintenance and repairs made by Tenant must comply with Landlord's sustainability practices and any applicable Green Agency Rating, as the same may change from time to time. If Tenant fails to maintain or repair the Premises in accordance with this Section 4.2, then Landlord may, but shall not be required to, enter the Premises upon five (5) Business Days prior written notice to Tenant (or immediately without any notice in the case of an emergency) to perform such maintenance or repair at Tenant's sole cost and expense. Tenant shall pay to Landlord the cost of such maintenance or repair plus a fifteen percent (15%) administration fee within ten (10) Business Days of written demand from Landlord.

4.2.2 Without limiting the generality of subsections 3.5.5 or 4.2.1 hereof, Tenant shall be responsible at Tenant's sole cost and expense for the maintenance, repair and/or replacement of any special heating, ventilating, air conditioning, plumbing, electrical or other systems and fixtures installed solely to service the Premises, whether installed or paid for by Landlord or Tenant.

4.3 Common Areas/Security; Access.

4.3.1 The common areas of the Building shall be subject to Landlord's sole management and control. Without limiting the generality of the immediately preceding sentence, Landlord reserves the exclusive right as it deems necessary or desirable to install, construct, remove, maintain and operate lighting systems, facilities, improvements, equipment, Telecommunication Facilities and signs on, in or to all parts of the common areas; change the number, size, height, layout, or locations of walks, driveways and truckways or parking areas now or later forming a part of the Land or Building; make alterations or additions to the Building or common area; close temporarily all or any portion of the common areas to make repairs, changes or to avoid public dedication; grant easements to which the Land will be subject; replat, subdivide, or make other changes to the Land; place or relocate or cause to be placed or relocated utility lines and Telecommunication Facilities through, over or under the Land and Building; and use or permit the use of all or any portion of the roof of the Building. Landlord reserves the right to relocate parking areas and driveways (if any) and to build additional improvements in the common areas. Except in the case of an emergency or as required by Governmental Requirements, Landlord shall use commercially reasonable efforts to minimize interference with Tenant's access to or permitted use of the Premises in connection with the exercise by Landlord of the rights reserved in this subsection 4.3.1.

4.3.2 Landlord has no duty or obligation to provide any security services in, on or around the Premises, Land or Building, and Tenant recognizes that security services, if any, provided by Landlord will be for the sole benefit of Landlord and the protection of Landlord's property and under no circumstances shall Landlord be responsible for, and Tenant waives any rights with respect to, Landlord providing security or other protection for Tenant or Tenant's Agents or property in, on or about the Premises, Land or Building. Subject to Landlord's prior approval, Tenant may, at its sole cost and expense, install, establish and maintain security services within the Premises; provided that, such security services (including any apparatus, facilities, equipment or people utilized in connection with the provision of such security services) comply with the Governmental Requirements and shall not cause the Building to be out of compliance with the Governmental Requirements. Notwithstanding the foregoing, any such security services installed, established or maintained by Tenant must not affect or impact any portion of the Building or the Land other than the Premises and shall not in any way limit or interfere with Landlord's ability to exercise its rights as provided in the Section entitled "Access". Tenant's rights under this subsection are subject to all the obligations, limitations and requirements as set forth in the Sections entitled "Tenant Alterations" and "Tenant's Work Performance".

4.3.3 Tenant shall have the right to use the freight elevator and loading dock for the Building on a non-discriminatory, first-come, first served basis, it being understood that the use of the freight elevator and loading dock must be scheduled reasonably in advance with Landlord and shall be subject to the payment of Landlord's then standard, reasonable fee for any such usage after Building Standard Hours. Such use shall be subject to the Building's rules and regulations in effect from time to time.

4.3.4 Tenant shall have access to the Building and the Premises for Tenant and its employees and business invitees 24 hours per day/7 days per week, subject to the terms of this Lease and such security or monitoring systems as Landlord may reasonably impose, including, without limitation, sign-in procedures and/or presentation of identification cards.

4.4 **Tenant Alterations**. Tenant shall not make any alterations, additions or improvements in or to the Premises, or make changes to locks on doors, or add, disturb or in any way change any floor covering, wall covering, fixtures, plumbing, wiring or Telecommunication Facilities (individually and collectively, "Tenant Alterations"), without first obtaining the consent of Landlord, which consent Landlord may withhold in its sole discretion. Notwithstanding the foregoing, Landlord's consent to any Tenant Alterations that are entirely within the Premises and do not impact any structural components of the Building or any Building systems shall not be unreasonably withheld, conditioned or delayed. For all purposes hereof, the phrase "Tenant Alterations" shall include any signs installed or proposed to be installed by Tenant pursuant to Section 4.23. Tenant shall deliver to Landlord full and complete plans and specifications for any proposed Tenant Alterations and, if consent by Landlord is given, all such work shall be performed at Tenant's expense by Tenant. Tenant shall pay to Landlord all reasonable out-of-pocket costs incurred by Landlord for any architecture, engineering, supervisory and/or legal services in connection with any Tenant Alterations, including, without limitation, Landlord's review of any plans and specifications. Without limiting the generality of the foregoing, Landlord may require Tenant, at Tenant's sole cost and expense, to obtain and provide Landlord with proof of insurance coverage, in forms, amounts and by companies reasonably acceptable to Landlord. Should Tenant make any Tenant Alterations without Landlord's prior written consent, or without satisfaction of any conditions established by Landlord, Landlord shall have the right, in addition to and without limitation of any right or remedy Landlord may have under this Lease, at law or in equity, to require Tenant to remove some or all of Tenant Alterations, or at Landlord's election, Landlord may remove such Tenant Alterations and restore the Premises at Tenant's expense. Nothing contained in this Section 4.4 or the Section entitled "Tenant's Work Performance" shall be deemed a waiver of the provisions of the Section entitled "Mechanic's Liens". Notwithstanding the foregoing, Tenant shall not be required to obtain Landlord's consent for redecorating, repainting, recarpeting, or other alterations, tenant improvements or physical additions to the Premises which are cosmetic in nature totaling less than Fifty Thousand Dollars ($50,000.00) in any single instance or series of related alterations performed within a twelve (12) month period (provided that Tenant shall not perform any improvements, alterations or additions to the Premises in stages as a means to subvert this provision), in each case provided that (A) Tenant delivers to Landlord written notice thereof, a list of contractors and subcontractors to perform the work (and certificates of insurance for each such contractor and subcontractor) and, if and only if plans and/or specifications are prepared for the work, copies of such plans and/or specifications, prior to commencing any such alterations, additions or improvements (for informational purposes only so long as no consent is required by Landlord as required by this Lease), (B) the installation thereof does not require the issuance of any building permit or other governmental approval, or involve any core drilling or the configuration or location of any exterior or interior walls of the Building, and (C) such alterations, additions and improvements will not affect (i) the Building's structure or the Building's systems, (ii) the provision of services to other Building tenants, or (iii) the appearance of the Building's common areas or the exterior of the Building.

4.5 **Tenant's Work Performance**. If Landlord consents to any Tenant Alterations, Landlord may, in its absolute discretion, require that Tenant provide a payment and performance bond to cover the entire work to be performed, which bond must be in form, amount and by a company acceptable to Landlord. Notwithstanding the foregoing, Landlord shall not require Tenant to obtain a payment and performance bond if (a) at the time of such Tenant Alterations, Tenant has a tangible net worth at least equal to or greater than the tangible net worth of Tenant as of the date of this Lease, and (b) the aggregate cost of the Tenant Alterations (including all related Tenant Alterations which may be part of a larger project or a series of related projects) is less than Seventy-five Thousand Dollars ($75,000.00). Any Tenant Alterations to be performed under this Section 4.5 shall be performed by contractors approved by Landlord (which approval shall not be unreasonably withheld or delayed) and employed by Tenant under one or more construction contracts, in form and content approved in advance in writing by Landlord. Approval shall be subject to Landlord's discretion and shall include a requirement that the prime contractor and the respective subcontractors of any tier performing the Tenant Alterations: (a) be parties to, and bound by, a collective bargaining agreement with a labor organization affiliated with the Building and Construction Trades Council of the AFL-CIO applicable to the geographic area in which the Building is located and to the trade or trades in which the work under the contract is to be performed and (b) employ only members of such labor organizations to perform work within their respective jurisdictions. The previous sentence shall apply whether it is Landlord or Tenant performing or contracting for any such alterations, additions, improvements or installations. Waivers or exceptions to the requirement in the third sentence of this Section 4.5 may be given only in writing by Landlord. With the specific, prior written approval of Landlord, which may be withheld in Landlord's sole and absolute discretion, in clause (a) of the third sentence of this Section 4.5 the following substitutions may be made: (1) a project labor agreement in place of a collective bargaining agreement, and (2) an independent, nationally recognized labor organization in place of a labor organization affiliated with the Building and Construction Trades Council of the AFL-CIO. Tenant's contractors, workers and suppliers shall work in harmony with and not interfere with workers or contractors of Landlord or other tenants of Landlord. If Tenant's contractors, workers or suppliers do, in the opinion of Landlord, cause such disharmony or interference, Landlord's consent to the continuation of such work may be withdrawn upon written notice to Tenant. All Tenant Alterations shall be (1) completed in accordance with the plans and specifications approved by Landlord; (2) completed in accordance with all Governmental Requirements; (3) carried out promptly in a good and workmanlike manner; (4) of all new materials; and (5) free of defect in materials and workmanship. In addition to the above requirements, Tenant shall use commercially reasonable efforts to contract for services to be performed in or about the Premises with companies which are a Responsible Contractor. A "Responsible Contractor" is defined as a contractor or subcontractor who pays workers a fair wage and Fair Benefits as evidenced by payroll and employee records and who complies with a service-disabled veteran business policy. "Fair Benefits" are defined as including employer-paid family health care coverage, pension benefits, and apprenticeship programs. Any and all Tenant Alterations shall adhere to the design and construction requirements set forth in Exhibit K attached hereto. Any and all Tenant Alterations that affects at least fifty percent (50%) of the Premises will be performed in accordance with Landlord's sustainability practices (as same may be in effect or amended or supplemented from time to time), and any Green Agency Ratings, as the same may change from time to time. Tenant further agrees to use reasonable efforts to engage a qualified third party LEED or Green Globe Accredited Professional or similarly qualified professional during the design phase through implementation of any Tenant Alterations covered by the preceding sentence, in order to review all plans, material procurement, demolition, construction and waste management procedures to ensure they are in full conformance to Landlord's sustainability practices, as aforesaid, and Tenant agrees to use reasonable efforts to seek and maintain LEED for Commercial Interiors certification for such Tenant Alterations. Notwithstanding the foregoing, in exercising such reasonable efforts to engage a qualified third party LEED or Green Globe Accredited Professional or to seek and maintain LEED for Commercial Interiors certification for such Tenant Alterations, Tenant shall not be required to incur, as to any material component of the Tenant Alterations, a substantial increase in the cost of such component of the Tenant Alterations. Tenant shall pay for all damage to the Premises, Building and Land caused by Tenant or Tenant's Agents. Tenant shall indemnify, defend and hold harmless Landlord and Landlord's Agents from any Claims arising as a result of the Tenant Alterations or any defect in design, material or workmanship of any Tenant Alterations.

4.6 **Surrender of Possession**. Tenant shall, at the expiration or earlier termination of this Lease, surrender and deliver the Premises to Landlord in as good condition as when received by Tenant from Landlord or as later improved, reasonable use and wear and damage by Casualty excepted (but only if and to the extent Tenant is not obligated to repair such damage under Section 4.9 hereof), and free from all tenancies or occupancies by any person.

4.7 **Removal of Property and Tenant Alterations**. Unless otherwise agreed to in writing by Landlord, Tenant agrees that there are and shall be no fixtures in the Premises owned by Tenant. Upon expiration or earlier termination of this Lease, Tenant may remove its personal property, office supplies, trade fixtures and office furniture and equipment if (a) such removal is completed prior to the expiration or earlier termination of this Lease; and (b) Tenant immediately repairs all damage caused by or resulting from such removal. All other property in the Premises and any Tenant Alterations (including, wall-to-wall carpeting, paneling, wall covering, lighting fixtures and apparatus or Telecommunication Facilities or any other article affixed to the floor, walls, ceiling or any other part of the Premises or Building) shall become the property of Landlord and shall remain upon and be surrendered with the Premises: provided, however, at Landlord's sole election, Tenant shall be obligated, at its sole cost and expense, to remove all (or such portion as Landlord shall designate) of the Tenant Alterations constituting Specialty Alterations (including Telecommunication Facilities), repair any damages resulting from such removal and return the Premises to the same condition as existed prior to such Tenant Alterations. Notwithstanding the foregoing, if Tenant's submission of its plans and specifications to Landlord for approval of any Tenant Alterations is accompanied by a written request that Landlord identify any Tenant Alterations which Landlord considers Specialty Alterations (if any) that Landlord may require Tenant to remove upon the expiration or earlier termination of this Lease, Landlord shall identify such Specialty Alterations (if any) by a written notice (a "Removal Notice") to Tenant given at the time of Landlord's approval of such plans and specifications if, but only if, Tenant's request for approval of such plans and specifications is submitted with a notice at the top of the page having a heading in at least 12-point type, bold and all capital letters stating "**LANDLORD'S APPROVAL MUST IDENTIFY ANY SPECIALTY ALTERATIONS WHICH LANDLORD MAY REQUIRE TENANT TO REMOVE UPON THE EXPIRATION OR EARLIER TERMINATION OF THIS LEASE**". In all events, Tenant shall be required to remove all wiring and cabling installed in the Building by or at the request of the Tenant. Tenant waives all rights to any payment or compensation for such Tenant Alterations (including Telecommunication Facilities). If Tenant shall fail to remove any of personal property from the Premises, Building or Land at the expiration or earlier termination of this Lease or when Landlord has the right of re-entry, Landlord may, at its option, remove and store such personal property, at Tenant's expense, without liability for loss of or damage to such personal property, such storage to be for the account and at the expense of Tenant. Tenant shall pay all costs incurred by Landlord within seven (7) Business Days after demand for such payment. If Tenant fails to pay the cost of storing any such personal property, Landlord may, at its option, after it has been stored for a period of twenty (20) Business Days or more, sell or permit to be sold, any or all such personal property at public or private sale (and Landlord may become a purchaser at such sale), in such manner and at such times and places as Landlord in its sole discretion may deem proper, without notice to Tenant, and Landlord shall apply the proceeds of such sale: *first*, to the cost and expense of such sale, including reasonable attorney's fees actually incurred; *second*, to the payment of the costs or charges for storing any such personal property; *third*, to the payment of any other sums of money which may then be or later become due Landlord from Tenant under this Lease; and, *fourth*, the balance, if any, to Tenant. Notwithstanding anything herein to the contrary, Tenant shall not be obligated to remove from the Premises at the end of the Term any of the improvements depicted on the Space Plans (as hereinafter defined); provided, however, at Landlord's sole election, Tenant shall be obligated, at its sole cost and expense, to remove from the Premises at the end of the Term the kitchen depicted on the Space Plans and repair any damage caused by such removal.

4.8 **Landlord's Access**. Tenant shall permit Landlord and Landlord's Agents to enter into the Premises at any time to perform janitorial services in accordance with subsection 4.1.3 and at any time on at least one (1) Business Day's notice (except in case of emergency in which case no notice shall be required), for the purpose of inspecting the same or for the purpose of repairing, altering or improving the Premises or the Building. Nothing contained in this Section 4.8 shall be deemed to impose any obligation upon Landlord not expressly stated elsewhere in this Lease. When, and for so long as, reasonably necessary, Landlord may temporarily close Building or Land entrances, Building doors or other facilities, without liability to Tenant by reason of such closure and without such action by Landlord being construed as an eviction of Tenant or as relieving Tenant from the duty of observing or performing any of the provisions of this Lease. Landlord shall have the right to enter the Premises at any time during the last twelve (12) months of the Lease Term after at least twenty-four (24) hours' prior written or oral notice to Tenant and at any time during the Lease Term that an Event of Default exists (with or without prior notice to Tenant) for the purpose of showing the Premises to prospective tenants. Tenant shall give written notice to Landlord at least twenty (20) Business Days prior to vacating the Premises and shall arrange to meet with Landlord for a joint inspection of the Premises prior to vacating. In the event of Tenant's failure to give such notice or arrange such joint inspection, Landlord's inspection at or after Tenant's vacating the Premises shall be conclusively deemed correct for purposes of determining Tenant's responsibility for repairs and restoration. Landlord shall not be liable for the consequences of admitting by passkey, or refusing to admit to the Premises, Tenant or any of Tenant's Agents.

4.9 Damage or Destruction.

4.9.1 If the Premises are damaged by fire, earthquake or other casualty (each a "Casualty"), Tenant shall give prompt written notice (a "Casualty Notice") thereof to Landlord. After Landlord's receipt of the Casualty Notice, Landlord shall make a determination (based upon the advice of Landlord's architect, engineer, contractor or other professional) of the time required to substantially repair such damage ("Landlord's Estimated Restoration Period"), and Landlord shall so notify Tenant of same. Landlord shall notify Tenant of Landlord's Estimated Restoration Period within ninety (90) days after the applicable Casualty. If Landlord estimates that the damage can be repaired in accordance with the then-existing Governmental Requirements within nine (9) months after Landlord's receipt of the Casualty Notice and if there are sufficient insurance proceeds available to repair such damage, then Landlord shall proceed with reasonable diligence to restore the Premises to substantially the condition which existed prior to the damage and this Lease shall not terminate. If, in Landlord's estimation, the damage cannot be repaired within such nine (9) month period or if there are insufficient insurance proceeds available to repair such damage, Landlord may elect in its absolute discretion to either: (a) terminate this Lease or (b) restore the Premises to substantially the condition which existed prior to the damage and this Lease will continue. If Landlord's Estimated Restoration Period exceeds nine (9) months from the date of Landlord's receipt of the Casualty Notice, Tenant also shall have the right to terminate this Lease by giving Landlord written notice of such termination within ten (10) Business Days after Landlord's delivery to tenant of notice of the Landlord's Estimated Restoration Period (time being of the essence). If Landlord restores the Premises under this Section 4.9, then (1) Landlord shall use commercially reasonable efforts to proceed toward completion of the restoration and Tenant shall pay to Landlord, upon demand, Tenant's Pro Rata Share of any applicable deductible amount specified under Landlord's insurance and (2) notwithstanding anything to the contrary contained herein, Landlord shall not be required to repair or restore Tenant Improvements, Tenant Alterations (including Telecommunication Facilities), or any or all furniture, fixtures, equipment, inventory, improvements or other property which was in or about the Premises at the time of the damage and was not owned by Landlord. In the case of damage to the Premises or the Building which is of a nature or extent that (a) such damage materially interferes with Tenant's access to or use of a portion but not all of the Premises (such portion being referred to herein as the "Materially Affected Premises"), Base Rent and Additional Rent otherwise payable hereunder shall be abated by the percentage that the rentable area of the Materially Affected Premises bears to the total rentable area of the Premises, for the period beginning on the date of the Casualty Notice and ending on the earlier of (i) the date that Landlord has substantially completed its repairs to the Materially Affected Premises and (ii) the date that Tenant uses any portion of the Materially Affected Premises for the conduct of its business, or (b) such damage materially interferes with Tenant's access to or use of the entire Premises, all Base Rent and Additional Rent otherwise payable hereunder shall be abated for the period beginning on the date of the Casualty Notice and ending on the earlier of (i) the date that Landlord has substantially completed its repairs to the Premises and (ii) the date that Tenant uses any portion of the Premises for the conduct of its business. Except for the abatement of rent if and to the extent provided herein, Tenant agrees to look to the provider of Tenant's insurance for coverage for the loss of Tenant's use of the Premises and any other related losses or damages incurred by Tenant during any reconstruction period. If this Lease has not been terminated by Landlord or Tenant as provided above, the validity and effect of this Lease shall not be impaired in any way by the failure of Landlord to complete repairs and restoration of the Premises or the Building prior to the expiration of Landlord's Estimated Restoration Period. Notwithstanding the foregoing, if the Premises have not been restored to the condition required by Landlord hereunder prior to the later of the expiration of Landlord's Estimated Restoration Period or the date which is twelve (12) months after Landlord's receipt of the Casualty Notice (which date in each case shall be extended one day for each day of delay caused by any act or omission of Tenant and for events of Force Majeure as contemplated in Section 6.8 hereof), then Tenant shall have the right to cancel this Lease upon not less than sixty (60) days prior written notice given to the Landlord within ten (10) Business Days after the expiration of such period (time being of the essence), provided such cancellation shall be void and this Lease shall continue in full force and effect in the event that substantial completion of the Premises is achieved within such sixty (60) day period (which date shall be extended one day for each day of delay caused by any act or omission of Tenant and for events of Force Majeure as contemplated in Section 6.8 hereof).

4.9.2 If the Building is damaged by Casualty and more than fifty percent (50%) of the Building is rendered untenantable, without regard to whether the Premises are affected by such damage, Landlord may, in its absolute discretion and without limiting any other options available to Landlord under this Lease or otherwise, elect to terminate this Lease by notice in writing to Tenant within forty (40) Business Days after the occurrence of such damage if Landlord is also terminating the leases of other tenants in the Building who are similarly situated to Tenant. Such termination shall be effective sixty (60) days after receipt by Tenant of such termination notice.

4.9.3 Notwithstanding anything contained in this Lease to the contrary, if there is damage to the Premises or Building and the holder of any indebtedness secured by a mortgage or deed of trust covering any such property requires that the insurance proceeds be applied to such indebtedness or if the insurance proceeds are otherwise inadequate to complete the repair of the damages to the Premises, the Building or both, then Landlord shall have the right to terminate this Lease by delivering written notice of termination to Tenant within fifteen (15) Business Days after Landlord is notified of such requirement. Such termination shall be effective sixty (60) days after receipt by Tenant of such termination notice.

4.9.4 Notwithstanding the foregoing, if the Premises or the Building are materially damaged or destroyed within the final twelve (12) months of the Term and Landlord estimates that less than six (6) months will remain in the Lease Term on the date by which Landlord estimates completion of its restoration work, either party may, at its option, elect to terminate this Lease upon written notice to the other party within thirty (30) days following such damage or destruction.

4.10 **Condemnation**. If greater than twenty-five percent (25%) of the Premises, or such portions of the Building as may be required for the Tenant's reasonable use of the Premises, are taken by eminent domain or by conveyance in lieu thereof, this Lease shall automatically terminate as of the date the physical taking occurs, and all Base Rent, Additional Rent and other sums payable under this Lease shall be paid to that date. In case of taking of less than twenty-five percent (25%) of the Premises or a portion of the Building not required for the Tenant's reasonable use of the Premises, then this Lease shall continue in full force and effect and the Base Rent shall be equitably reduced based on the proportion by which the floor area of the Premises is reduced, such reduction in Base Rent to be effective as of the date the physical taking occurs. Additional Rent and all other sums payable under this Lease shall not be abated but Tenant's Pro Rata Share may be redetermined as equitable under the circumstances. Landlord reserves all rights to damages or awards for any taking by eminent domain relating to the Premises, Building, Land and the unexpired term of this Lease. Tenant assigns to Landlord any right Tenant may have to such damages or award and Tenant shall make no claim against Landlord for damages for termination of its leasehold interest or interference with Tenant's business. Tenant shall have the right, however, to claim and recover from the condemning authority compensation for any loss to which Tenant may be entitled for Tenant's moving expenses or other relocation costs; provided that, such expenses or costs may be claimed only if they are awarded separately in the eminent domain proceedings and not as a part of the damages recoverable by Landlord.

4.11 **Intentionally Omitted.**

4.12 **Indemnification.**

4.12.1 Except to the extent resulting from the negligence or willful misconduct of Landlord or Landlord's Agents or from Landlord's or Landlord's Agents' violation of applicable Governmental Requirements and subject to the terms of the Section entitled "Waiver of Subrogation", Tenant shall indemnify, defend and hold harmless Landlord and Landlord's Agents from and against any and all Claims, arising in whole or in part out of (a) the possession, use or occupancy of the Premises or the business conducted in the Premises, (b) any act, omission or negligence of Tenant or Tenant's Agents, or (c) any breach or default under this Lease by Tenant. Subject to the Section entitled "Waiver of Subrogation", Landlord shall defend, indemnify, and hold harmless Tenant and its agents from and against all claims, demands, liabilities, causes of action, suits, judgments, damages, and expenses (including reasonable attorneys' fees) for any Claims arising from any occurrence in or on the Building's common areas to the extent caused by the negligence or willful misconduct of Landlord or Landlord's agents.

4.12.2 Except as specified in the next sentence or as otherwise expressly provided in this Lease, neither Landlord nor Landlord's Agents shall, to the extent permitted by law, have any liability to Tenant, or to Tenant's Agents, for (1) any Claims arising out of any cause whatsoever, including repair to any portion of the Premises: (2) interruption in or interference with the use of the Premises or any equipment therein; (3) any accident or damage resulting from any use or operation by Landlord, Tenant or any person or entity of heating, cooling, electrical, sewerage or plumbing equipment or apparatus or Telecommunication Facilities; (4) termination of this Lease by reason of damage to the Premises or Building; (5) fire, robbery, theft, vandalism, mysterious disappearance or a Casualty of any kind or nature; (8) actions of any other tenant of the Building or of any other person or entity; (7) inability to furnish any service required of Landlord as specified in this Lease; or (8) leakage in any part of the Premises or the Building from rain, ice or snow, or from drains, pipes or plumbing fixtures in the Premises or the Building. Landlord shall be responsible only for Claims arising solely out of the negligence or willful misconduct of Landlord in failing to repair or maintain the Building as required by this Lease; but in no event shall Landlord's responsibility extend to any interruption to Tenant's business or any indirect or consequential losses suffered by Tenant or Tenant's Agents or extend beyond Landlord's responsibility as set forth in the Section entitled "Utilities" when that Section is applicable. The obligations of this Section 4.12 shall be subject to the Section entitled "Waiver of Subrogation".

4.13 Tenant Insurance.

4.13.1 Tenant shall, throughout the Lease Term, at its own expense, keep and maintain in full force and effect the following policies, each of which shall be endorsed as needed to provide that the insurance afforded by these policies is primary and that all insurance carried by Landlord is strictly excess and secondary and shall not contribute with Tenant's liability insurance:

(a) A policy of commercial general liability insurance, including a contractual liability endorsement covering Tenant's obligations under the Section entitled "Indemnification", insuring against claims of bodily injury and death or property damage or loss with a combined single limit at the Commencement Date of this Lease of not less than Five Million Dollars ($5,000,000.00), which limit shall be reasonably increased during the Lease Term at Landlord's request to reflect both increases in liability exposure arising from inflation as well as from changing use of the Premises or changing legal liability standards, which policy shall be payable on an "occurrence" rather than a "claims made" basis, and which policy names Landlord, Bentall Kennedy (U.S.) Limited Partnership, the Manager and, at Landlord's request, Landlord's mortgage lender(s) and/or investment advisors, as additional insureds;

(b) A policy of extended property insurance (which is commonly called "all risk") covering Tenant Improvements, Tenant Alterations (including Telecommunication Facilities), and any and all furniture, fixtures, equipment, inventory, improvements and other property in or about the Premises which is not owned by Landlord, for one hundred percent (100%) of the then current replacement cost of such property;

(c) Business interruption insurance in an amount sufficient to cover costs, damages, lost income, expenses, Base Rent, Additional Rent and all other sums payable under this Lease, should any or all of the Premises not be usable for a period of up to twelve (12) months;

(d) A policy of worker's compensation insurance as required by applicable Governmental Requirements and employer's liability insurance with limits of no less than One Million Dollars ($1,000,000.00); and

(e) If at any time during the Lease Term Tenant owns or leases any motor vehicle(s), a policy of comprehensive automobile liability insurance, including loading and unloading, and covering owned, non-owned and hired vehicles, with limits of no less than One Million Dollars ($1,000,000.00) per occurrence.

4.13.2 All insurance policies required under this Section 4.13 shall be with companies reasonably approved by Landlord and each policy shall provide that it is not subject to cancellation, lapse or reduction in coverage except after thirty (30) days' written notice to Landlord. Prior to the Commencement Date and from time to time thereafter, Tenant shall deliver to Landlord, Bentall Kennedy (U.S.), LP, the Manager, and, at Landlord's request, any other parties hereunder required to be named as additional insureds, certificates evidencing the existence and amounts of all such policies.

4.13.3 If Tenant fails to acquire or maintain any insurance or provide any certificate required by this Section 4.13, Landlord may, but shall not be required to, obtain such insurance or certificates and the costs associated with obtaining such insurance or certificates shall be payable by Tenant to Landlord on demand.

4.14 **Landlord's Insurance**. Landlord shall, throughout the Lease Term, keep and maintain in full force and effect:

4.14.1 A policy of commercial general liability insurance, insuring against claims of bodily injury and death or property damage or loss with a combined single limit at the Commencement Date of not less than One Million Dollars ($1,000,000.00) per occurrence and Two Million Dollars ($2,000,000.00) in the aggregate, which policy shall be payable on an 'occurrence" rather than a "claims made" basis;

4.14.2 A policy of extended property insurance (what is commonly called 'all risk") covering the Building and Landlord's personal property, if any, located on the Land in the amount of one hundred percent (100%) of the then current replacement value of such property; and

4.14.3 Landlord may, but shall not be required to, maintain other types of insurance as Landlord deems appropriate, including but not limited to, property insurance coverage for earthquakes and floods in such amounts as Landlord deems appropriate. Such policies may be "blanket" policies which cover other properties owned by Landlord.

4.15 **Waiver of Subrogation.** Notwithstanding anything in this Lease to the contrary, Landlord and Tenant hereby each waive and release the other from any and all Claims or any loss or damage that may occur to the Land, Building, Premises, or personal property located therein, by reason of Casualty regardless of cause or origin, including the negligence or misconduct of Landlord, Tenant, Landlord's Agents or Tenant's Agents, but only to the extent of the insurance proceeds paid to such releasor under its policies of insurance or, if it fails to maintain the required policies, the insurance proceeds that would have been paid to such releasor if it had maintained such policies. Each party to this Lease shall promptly give to its insurance company written notice of the mutual waivers contained in this subsection, and shall cause its insurance policies to be properly endorsed, if necessary, to prevent the invalidation of any insurance coverages by reason of the mutual waivers contained in this subsection.

4.16 Assignment and Subletting by Tenant.

4.16.1 Tenant shall not have the right to assign, transfer, mortgage or encumber this Lease in whole or in part, nor sublet the whole or any part of the Premises, nor allow the occupancy of all or any part of the Premises by another, without first obtaining Landlord's written consent. Landlord shall not unreasonably withhold its consent to any assignment or subletting of the Premises, provided that the proposed assignee or subtenant (1) is creditworthy, (2) has a good reputation in the business community, (3) will use the Premises for the Permitted Use, (4) will not use the Premises or Building in a manner that would materially increase the pedestrian or vehicular traffic to the Premises or Building, (5) is not a governmental entity, or subdivision or agency thereof, (6) is not another occupant of the Building, and (7) is not a person or entity with whom Landlord is then, or has been within the six-month period prior to the time Tenant seeks to enter into such assignment or subletting, negotiating to lease space in the Building or any Affiliate of any such person or entity; otherwise, Landlord may withhold its consent in its sole discretion. Additionally, Landlord may withhold its consent in its sole discretion to any proposed assignment or subletting if any Event of Default by Tenant then exists. Notwithstanding any permitted assignment or subletting, Tenant shall at all times remain directly, primarily and fully responsible and liable for the payment of all sums payable under this Lease and for compliance with all of its other obligations as tenant under this Lease. Landlord's acceptance of Base Rent, Additional Rent or any other sum from any assignee, sublessee, transferee, mortgagee or encumbrance holder shall not be deemed to be Landlord's approval of any such conveyance. Upon the occurrence of an Event of Default, if the Premises or any part of the Premises are then subject to an assignment or subletting. Landlord may, at its option, collect directly from such assignee or subtenant all rents becoming due to Tenant under such assignment or sublease and apply such rents against any sums due to Landlord from Tenant under this Lease. No such collection shall be construed to constitute a novation or release of Tenant from the further performance of Tenant's obligations under this Lease. Landlord's right of direct collection shall be in addition to and not in limitation of any other rights and remedies provided for in this Lease or at law. Tenant makes an absolute assignment to Landlord of such assignments and subleases and any rent, lease security deposits and other sums payable under such assignments and subleases as collateral to secure the performance of the obligations of Tenant under this Lease.

4.16.2 In the event Tenant desires to assign this Lease or to sublet all or any portion of the Premises, Tenant shall give written notice of such desire to Landlord setting forth the name of the proposed subtenant or assignee, the proposed term, the nature of the proposed subtenant's or assignee's business to be conducted on the Premises, the rental rate, and any other particulars of the proposed subletting or assignment that Landlord may reasonably request. Without limiting the preceding sentence, Tenant shall also provide Landlord with: (a) such financial information as Landlord may reasonably request concerning the proposed subtenant or assignee, including recent financial statements certified as accurate and complete by a certified public accountant and by the president, managing partner or other appropriate officer of the proposed subtenant or assignee: (b) proof reasonably satisfactory to Landlord that the proposed subtenant or assignee will immediately occupy and thereafter use the entire Premises (or any sublet portion of the Premises) for the remainder of the Lease Term (or for the entire term of the sublease, if shorter) in compliance with the terms of this Lease; and (c) a copy of the proposed sublease or assignment or letter of intent. Tenant shall pay to Landlord, upon Landlord's demand therefor, Landlord's reasonable attorneys' fees incurred in the review of such documentation and in documenting Landlord's consent, not to exceed $2,500.00 for each request for Landlord's consent. Receipt of such fees shall not obligate Landlord to consent to the proposed assignment or sublease.

4.16.3 In determining whether to grant or withhold consent to a proposed assignment or sublease, Landlord may consider, and weigh, any factor it deems relevant, in its reasonable discretion.

4.16.4 Within fifteen (15) Business Days after Landlord's receipt of all required information to be supplied by Tenant pursuant to this Section 4.16, Landlord shall notify Tenant of Landlord's approval, disapproval or conditional approval of any proposed assignment or subletting or of Landlord's election to recapture as described below. Landlord shall have no obligation to respond unless and until all required information has been submitted. In the event Landlord approves of any proposed assignment or subletting, Tenant and the proposed assignee or sublessee shall execute and deliver to Landlord an assignment (or subletting) and assumption agreement in form and content reasonably satisfactory to Landlord.

4.16.5 Any transfer, assignment or hypothecation of any of the stock or interest in Tenant, or the assets of Tenant, or any other transaction, merger, reorganization or event, however constituted, whether in a single transaction or series of transactions over a six (6) month period, which (a) results in fifty percent (50%) or more of such stock, interest or assets going into different ownership, or (b) is a subterfuge denying Landlord the benefits of this Section 4.16, shall be deemed to be an assignment within the meaning and provisions of this Section 4.16 and shall be subject to the provisions of this Section 4.16. Notwithstanding the foregoing, any transfer, assignment or hypothecation of any of the publicly traded common stock in Tenant held by Ionis Pharmaceuticals as of the Effective Date shall not be subject to this Section 4.16.

4.16.6 If Landlord consents to any assignment or sublease and Tenant receives rent or any other consideration, either initially or over the term of the assignment or sublease, in excess of the Base Rent and Additional Rent (or, in the case of a sublease of a portion of the Premises, in excess of the Base Rent paid by Tenant on a square footage basis under this Lease) (such amount being referred to herein as the "Gross Profit"), Tenant shall pay to Landlord fifty percent (50%) of the Net Profit. As used herein, the "Net Profit" means the Gross Profit less the reasonable and customary marketing and transaction expenses incurred by Tenant in making such assignment or sublease, including, without limitation, costs or allowances for leasehold improvements, reasonable legal fees and leasing commissions, provided that, for purposes of calculating the Net Profit, such expenses shall be amortized over the term of the applicable assignment or sublease.

4.16.7 Landlord shall have the right to recapture the Premises or the applicable portion thereof (a "Recapture") by giving written notice of such Recapture to Tenant within fifteen (15) Business Days after receipt of Tenant's written request for Landlord's consent to such proposed assignment or subletting. Tenant shall have no right to retract its request for Landlord's consent to assign or sublease once such request has been made. Such Recapture shall terminate this Lease as to the applicable space effective on the prospective effective date of assignment or subletting, which shall be the last day of a calendar month and shall not be earlier than forty-five (45) Business Days after receipt of Tenant's request hereunder. If less than the entire Premises are Recaptured, this Lease shall remain in full force and effect with respect to that remaining area not Recaptured by Landlord. Tenant shall surrender that portion of the Premises Recaptured by Landlord in accordance with the terms and conditions of this Lease. Notwithstanding the foregoing, if at any time during the Term Tenant is occupying the entre Premises and is proposing to sublease not more than 10,000 rentable square feet of floor area of the Premises, then Landlord shall not have the right to Recapture with respect to such proposed sublease.

4.16.8 Notwithstanding anything to the contrary in this Lease, provided that all amounts due under this Lease have been paid in full and further provided that no Event of Default exists, upon not less than ten (10) Business Days advance written notice to Landlord but without Landlord's consent, Tenant may assign this Lease or sublet all or any portion of the Premises to an Affiliate of the Tenant, provided (a) that Tenant has delivered to Landlord satisfactory evidence that the assignee or subtenant is an Affiliate of the Tenant, (b) Tenant reimburses Landlord on demand for all reasonable costs and expenses incurred by Landlord in determining compliance with the terms of this Section 4.16.8, including reasonable attorneys' fees, and (c) such entity remains an Affiliate of Tenant subsequent to the date of such assignment and for the remainder of the Lease Term. In all events, Tenant shall remain liable for its obligations under this Lease despite any such transfer.

4.16.9 Notwithstanding anything to the contrary in this Lease, provided that all amounts due under this Lease have been paid in full and further provided that no Event of Default exists, Tenant may, without Landlord's consent, assign this Lease in conjunction or connection with any merger, consolidation, corporate reorganization (other than pursuant to the bankruptcy laws), or the sale of all or substantially all of the assets of Tenant or the sale or other transfer of all or substantially all of the Tenant's stock or other ownership interests (directly or indirectly), provided that the resulting or surviving entity or transferee (as applicable) (a) assumes all of the liabilities and obligations of the Tenant under this Lease in a writing in form and substance reasonably satisfactory to Landlord, and (b) has a tangible net worth immediately following such transaction certified to Landlord by an independent certified public accountant equal to or greater than the tangible net worth of Tenant as of the date of this Lease or the date immediately prior to such transaction (whichever is greater), in each case as determined in accordance with generally accepted accounting principles. Tenant agrees (w) that Tenant shall furnish to Landlord written notice of such assignment at least ten (10) Business Days prior to the effective date of such assignment, unless, because of any confidentiality requirements applicable to such assignment, Tenant may not give to Landlord advance notice of such assignment, (x) that Tenant shall furnish to Landlord evidence of any such completed assignment within five (5) Business Days after the effective date of such assignment, (y) that Tenant shall remain liable for its obligations under this Lease, despite any such assignment, and (z) to reimburse Landlord on demand for all reasonable costs and expenses incurred by Landlord in determining compliance with the terms of this subsection, including reasonable attorneys' fees. The provisions of Section 4.16.7 shall not apply to an assignment pursuant to this Section 4.16.9.

4.17 **Assignment by Landlord**. Landlord shall have the right to transfer and assign, in whole or in part, its rights and obligations under this Lease and in any and all of the Land or Building. If Landlord sells or transfers any or all of the Building, including the Premises, Landlord and Landlord's Agents shall, upon consummation of such sale or transfer, be released automatically from any liability relating to obligations or covenants under this Lease to be performed or observed after the date of such transfer, provided that the transferee assumes in writing Landlord's obligations and covenants to be performed or observed under this Lease after the date of such transfer, and, in such event, Tenant agrees to look solely to the transferor with respect to such liability.

4.18 **Estoppel Certificates and Financial Statements**. Tenant shall, from time to time, upon the written request of Landlord, execute, acknowledge and deliver to Landlord or its designee a written statement stating: (a) the date this Lease was executed and the date it expires; (b) the date Tenant entered into occupancy of the Premises; (c) the amount of monthly Base Rent and Additional Rent and the date to which such Base Rent and Additional Rent have been paid; and (d) certifying that (1) this Lease is in full force and effect and has not been assigned, modified, supplemented or amended in any way (or specifying the date of the agreement so affecting this Lease); (2) Landlord is not in breach of this Lease (or, if so, a description of each such breach) and that no event, omission or condition has occurred which would result, with the giving of notice or the passage of time, in a breach of this Lease by Landlord; (3) this Lease represents the entire agreement between the parties with respect to the Premises; (4) all required contributions by Landlord to Tenant on account of Tenant improvements have been received; (5) on the date of execution, there exist no defenses or offsets which the Tenant has against the enforcement of this Lease by the Landlord; (6) no Base Rent, Additional Rent or other sums payable under this Lease have been paid in advance except for Base Rent and Additional Rent for the then current month; (7) no security has been deposited with Landlord (or, if so, the amount of such security); (8) it is intended that any Tenant's statement may be relied upon by a prospective purchaser or mortgagee of Landlord's interest or an assignee of any such mortgagee; and (9) such other information as may be reasonably requested by Landlord. If Tenant fails to respond within ten (10) days of its receipt of a written request by Landlord as provided in this Section 4.18, such shall be a breach of this Lease and Tenant shall be deemed to have admitted the accuracy of any information supplied by Landlord to a prospective purchaser, mortgagee or assignee. In addition, Tenant shall, from time to time, upon the written request of Landlord, deliver to or cause to be delivered to Landlord or its designee then current financial statements (including a statement of operations and balance sheet and statement of cash flows) certified as accurate by a certified public accountant (or by the chief financial officer of Tenant if Tenant does not obtain financial statements certified by a certified public accountant) and prepared in conformance with generally accepted accounting principles for (i) Tenant, (ii) any successor entity to Tenant by merger or operation of law, and (iii) any guarantor of this Lease. Landlord will not disclose any aspect of Tenant's financial statements except (1) to Landlord's mortgagee or prospective mortgagees or purchasers of the Building, (2) in litigation between Landlord and Tenant, and/or (3) if required by court order. Tenant shall not be required to deliver the financial statements required under this Section 4.1.8 more than once in any 12-month period unless requested by Landlord's mortgagee or a prospective buyer or lender of the Building or an Event of Default occurs.

4.19 **Modification for Lender**. If, in connection with obtaining construction, interim or permanent financing for the Building or Land, Landlord's lender, if any, shall request reasonable modifications to this Lease as a condition to such financing, Tenant will not unreasonably withhold or delay its consent to such modifications; provided that such modifications do not increase the obligations of Tenant under this Lease or materially adversely affect Tenant's rights under this Lease.

4.20 **Hazardous Substances**.

4.20.1 Neither Tenant, any of Tenant's Agents nor any other person shall store, place, generate, manufacture, refine, handle, or locate on, in, under or around the Land or Building any Hazardous Substance, except for storage, handling and use of reasonable quantities and types of cleaning fluids and office supplies in the Premises in the ordinary course and the prudent conduct of Tenant's business in the Premises. Tenant agrees that (a) the storage, handling and use of such permitted Hazardous Substances must at all times conform to all Governmental Requirements and to applicable fire, safety and insurance requirements; (b) the types and quantities of permitted Hazardous Substances which are stored in the Premises must be reasonable and appropriate to the nature and size of Tenant's operation in the Premises and reasonable and appropriate for a first-class building of the same or similar use and in the same market area as the Building; and (c) no Hazardous Substance shall be spilled or disposed of on, in, under or around the Land or Building or otherwise discharged from the Premises or any area adjacent to the Land or Building. In no event will Tenant be permitted to store, handle or use on, in, under or around the Premises any Hazardous Substance which will increase the rate of fire or extended coverage insurance on the Land or Building, unless: (1) such Hazardous Substance and the expected rate increase have been specifically disclosed in writing to Landlord; (2) Tenant has agreed in writing to pay any rate increase related to each such Hazardous Substance; and (3) Landlord has approved in writing each such Hazardous Substance, which approval shall be subject to Landlord's discretion.

4.20.2 Tenant shall indemnify, defend and hold harmless Landlord and Landlord's Agents from and against any and all Claims arising out of any breach of any provision of this Section 4.20, which expenses shall also include laboratory testing fees, personal injury claims, clean-up costs and environmental consultants' fees. Tenant agrees that Landlord may be irreparably harmed by Tenant's breach of this Section 4.20 and that a specific performance action may appropriately be brought by Landlord; provided that, Landlord's election to bring or not bring any such specific performance action shall in no way limit, waive, impair or hinder Landlord's other remedies against Tenant.

4.20.3 As of the execution date of this Lease, Tenant represents and warrants to Landlord that, except as otherwise disclosed by Tenant to Landlord, Tenant has no intent to bring any Hazardous Substances on, in or under the Premises except for the type and quantities authorized in the first paragraph of subsection 4.20.1.

4.21 **Access Laws**.

4.21.1 Tenant agrees to notify Landlord promptly if Tenant receives notification or otherwise becomes aware of: (a) any condition or situation on, in, under or around the Land or Building which may constitute a violation of any Access Laws or (b) any threatened or actual lien, action or notice that the Land or Building is not in compliance with any Access Laws. If Tenant is responsible for such condition, situation, lien, action or notice under this Section 4.21, Tenant's notice to Landlord shall include a statement as to the actions Tenant proposes to take in response to such condition, situation, lien, action or notice.

4.21.2 Tenant shall not alter or, after the Commencement Date, permit any subtenant or any other Person to alter the Premises in any manner which would violate any Access Laws or increase Landlord's responsibilities for compliance with Access Laws, without the prior approval of the Landlord. In connection with any such approval, Landlord may require a certificate of compliance with Access Laws from an architect, engineer or other person acceptable to Landlord. Tenant agrees to pay the reasonable fees incurred by such architect, engineer or other third party in connection with the issuance of such certificate of compliance. Landlord's consent to any proposed Tenant Alteration shall not (a) relieve Tenant of its obligations or indemnities contained in this Section 4.21or elsewhere in this Lease or (b) be construed as a warranty that such proposed alteration complies with any Access Law.

4.21.3 Tenant shall be solely responsible for all costs and expenses relating to or incurred in connection with: (a) failure of the Premises to comply with the Access Laws; and (b) bringing the Building and the common areas of the Building into compliance with Access Laws, if and to the extent such noncompliance arises out of or relates to: (1) Tenant's use of the Premises, including the hiring of employees; (2) any Tenant Alterations to the Premises; or (3) any Tenant Improvements constructed in the Premises at the request of Tenant, regardless of whether such improvements are constructed prior to or after the Commencement Date.

4.21.4 Landlord shall be responsible for all costs and expenses relating to or incurred in connection with bringing the common areas of the Building into compliance with Access Laws, unless such costs and expenses are Tenant's responsibility as provided in the preceding subsection.

4.21.5 Tenant agrees to indemnify, defend and hold harmless Landlord and Landlord's Agents from and against any and all Claims arising out of or relating to any failure of Tenant or Tenant's Agents to comply with Tenant's obligations under this Section 4.21.

4.21.6 The provisions of this Section 4.21 shall supersede any other provisions in this Lease regarding Access Laws, to the extent inconsistent with the provisions of any other Sections hereof.

4.22 **Quiet Enjoyment**. Landlord covenants that, provided no Event of Default has occurred, Tenant shall and may peacefully have, hold and enjoy the Premises without hindrance or molestation by Landlord subject to the provisions of this Lease.

4.23 **Signs.**

4.23.1 Tenant shall be permitted to have its entity name listed on the main directory sign for the Building situated in the main lobby of the Building at Landlord's expense.

4.23.2 After the Commencement Date, Tenant shall have the right, at Tenant's cost, to install, maintain, repair and replace identification signage in the elevator lobby on each full floor of the Premises (i.e., each floor of the Building that is entirely leased by Tenant). Any identification signage (or replacement thereof) installed in the elevator lobby on any full floor of the Premises (i.e., any floor of the Building that is entirely leased by Tenant) may be Tenant's then current logo design; provided such signage shall be subject to Landlord's prior written consent, which consent shall not be unreasonably withheld, conditioned or delayed.

4.24 Subordination.

4.24.1 Tenant subordinates this Lease and all rights of Tenant under this Lease to any mortgage, deed of trust, ground lease or similar instrument which may from time to time be placed upon the Premises (and all renewals, modifications, replacements and extensions of such encumbrances), and each such mortgage, deed of trust, ground lease or other instrument shall be superior to and prior to this Lease. Notwithstanding the foregoing, the holder or beneficiary of such mortgage, deed of trust, ground lease, vendor's lien or similar instrument shall have the right to subordinate or cause to be subordinated any such mortgage, deed of trust, ground lease, vendor's lien or similar instrument to this Lease or to execute a non-disturbance agreement in favor of Tenant on the standard form utilized by such lender or ground lessor. At the request of Landlord, the holder of such mortgage or deed of trust or any ground lessor, Tenant shall execute, acknowledge and deliver promptly in recordable form any instrument or subordination agreement that Landlord or such holder may request. Tenant further covenants and agrees that if the lender or ground lessor acquires the Premises as a purchaser at any foreclosure sale or otherwise, Tenant shall recognize and attorn to such party as landlord under this Lease, and shall make all payments required hereunder to such new landlord without deduction or set-off and, upon the request of such purchaser or other successor, execute, deliver and acknowledge documents confirming such attornment. Tenant waives the provisions of any law or regulation, now or hereafter in effect, which may give or purport to give Tenant any right to terminate or otherwise adversely affect this Lease or the obligations of Tenant hereunder in the event that any such foreclosure or termination or other proceeding is prosecuted or completed.

4.24.2 If at any time during the Lease Term the Building is encumbered by a mortgage, then, upon Tenant's written request, Landlord shall use commercially reasonable efforts to obtain for Tenant, at no cost to Landlord, a subordination, non-disturbance and attornment agreement from the holder of such mortgage, in the standard form customarily employed by such holder, provided that Landlord shall have no liability to Tenant, and the effectiveness of this Lease and the subordination of this Lease to any mortgage shall not be affected, in the event that it is unable to obtain any such agreement. Tenant shall reimburse Landlord, within ten (10) Business Days after demand therefor, for Landlord's out-of-pocket costs, including fees charged by the holder(s) of any mortgage(s) and its or their counsel and other reasonable attorney's fees and disbursements, incurred in connection with such efforts.

4.24.3 As of the date of this Lease, there are no mortgages encumbering the Building. If at any time during the Lease Term the Building is encumbered by a mortgage, then upon Tenant's written request, Landlord shall use commercially reasonable efforts to obtain for Tenant, at no cost to Landlord, a subordination, non-disturbance and attornment agreement from the holder of such mortgage, in the standard form customarily employed by such holder, provided that Landlord shall have no liability to Tenant, and the effectiveness of this Lease and the subordination of this Lease to any mortgage shall not be affected, in the event that it is unable to obtain any such agreement. Tenant shall reimburse Landlord, within ten (10) days after demand therefor, for Landlord's reasonable out-of-pocket costs, including fees charged by the holder(s) of any mortgage(s) and its or their counsel and other reasonable attorney's fees and disbursements, incurred in connection with such efforts.

4.25 **Workers Compensation Immunity**. If and to the extent that Tenant is obligated to indemnify, defend or hold harmless Landlord or Landlord's Agents from any Claims arising from its use of the Premises or any act or failure to act by Tenant or Tenants Agents or otherwise, Tenant expressly waives, solely to and in favor of Landlord and Landlord's Agents, its statutory workers compensation act employers immunity relative to any injury to an employee or employees of Tenant, and such waiver is not intended, and shall not be interpreted, to apply to the benefit of any employee or employees of Tenant.

4.26 **Brokers.** Each party to this Lease shall indemnify, defend and hold harmless the other party from and against any and all Claims asserted against such other party by any real estate broker, finder or intermediary relating to any act of the indemnifying party in connection with this Lease. Landlord shall be responsible for paying any commission or fee owed to Landlord's Broker in connection with this Lease, and Landlord's Broker shall be responsible for the payment of any commission or fee owed to Tenant's Broker in connection with this Lease pursuant to a written agreement between Landlord's Broker and Tenant's Broker.

4.27 **Limitation on Recourse**. Landlord has executed this Lease by its authorized representative signing solely in a representative capacity. Notwithstanding anything contained in this Lease to the contrary, Tenant confirms that the covenants of Landlord are made and intended, not as personal covenants of the Landlord's authorized representative, or for the purpose of binding such authorized representative personally, but solely in the exercise of the representative powers conferred upon such authorized representative by their principal. Liability with respect to the entry and performance of this Lease by or on behalf of Landlord, however it may arise, shall be asserted and enforced only against Landlord's estate and equity interest in the Building. Neither Landlord nor any of Landlord's Agents shall have any personal liability in the event of any claim against Landlord arising out of or in connection with this Lease, the relationship of Landlord and Tenant or Tenant's use of the Premises. Further, in no event whatsoever shall any Landlord's Agent have any liability or responsibility whatsoever arising out of or in connection with this Lease, the relationship of Landlord and Tenant or Tenant's use of the Premises. Any and all personal liability, if any, beyond that which may be asserted under this Section 4.27, is expressly waived and released by Tenant and by all persons claiming by, through or under Tenant.

4.28 **Mechanic's Liens and Tenant's Personal Property Taxes**.

4.28.1 Tenant shall have no authority, express or implied, to create or place any lien or encumbrance of any kind or nature whatsoever upon, or in any manner to bind, the interest of Landlord or Tenant in the Premises or to charge the rentals payable under this Lease for any Claims in favor of any person dealing with Tenant, including those who may furnish materials or perform labor for any construction or repairs. Tenant shall immediately pay or cause to be paid all sums legally due and payable by it on account of any labor performed or materials furnished in connection with any work performed on the Premises on which any lien is or can be validly and legally asserted against its leasehold interest in the Premises and Tenant shall indemnify, defend and hold harmless Landlord from any and all Claims arising out of any such asserted Claims. Tenant agrees to give Landlord immediate written notice of any such Claim.

4.28.2 Tenant shall be liable for all taxes levied or assessed against personal property, furniture or fixtures placed by Tenant in the Premises. If any such taxes for which Tenant is liable are levied or assessed against Landlord or Landlord's property and Landlord elects to pay them or if the assessed value of Landlord's property is increased by inclusion of such personal property, furniture or fixtures and Landlord elects to pay the taxes based on such increase, Tenant shall reimburse Landlord for the sums so paid by Landlord, upon demand by Landlord.

4.29 **Intentionally Omitted**.

4.30 **No Offset; Independent Covenants; Waiver**. Rent shall be paid without notice or demand, and without setoff, counterclaim, defense, abatement, suspension, deferment, reduction or deduction, except as expressly provided herein. Tenant waives all rights (i) to any abatement, suspension, deferment, reduction or deduction of or from Rent, except to the extent otherwise expressly set forth herein, and (ii) to quit, terminate or surrender this Lease or the Premises or any part thereof, except as expressly provided herein. **TENANT HEREBY ACKNOWLEDGES AND AGREES THAT THE OBLIGATIONS OF TENANT HEREUNDER SHALL BE SEPARATE AND INDEPENDENT COVENANTS AND AGREEMENTS, THAT RENT SHALL CONTINUE TO BE PAYABLE IN ALL EVENTS AND THAT THE OBLIGATIONS OF TENANT HEREUNDER SHALL CONTINUE UNAFFECTED, UNLESS THE REQUIREMENT TO PAY OR PERFORM THE SAME SHALL HAVE BEEN TERMINATED PURSUANT TO AN EXPRESS PROVISION OF THIS LEASE. LANDLORD AND TENANT EACH ACKNOWLEDGES AND AGREES THAT THE INDEPENDENT NATURE OF THE OBLIGATIONS OF TENANT HEREUNDER REPRESENTS FAIR, REASONABLE, AND ACCEPTED COMMERCIAL PRACTICE WITH RESPECT TO THE TYPE OF PROPERTY SUBJECT TO THIS LEASE, AND THAT THIS AGREEMENT IS THE PRODUCT OF FREE AND INFORMED NEGOTIATION DURING WHICH BOTH LANDLORD AND TENANT WERE REPRESENTED BY COUNSEL SKILLED IN NEGOTIATING AND DRAFTING COMMERCIAL LEASES IN MASSACHUSETTS, AND THAT THE ACKNOWLEDGEMENTS AND AGREEMENTS CONTAINED HEREIN ARE MADE WITH FULL KNOWLEDGE OF THE HOLDING IN WESSON V. LEONE ENTERPRISES, INC., 437 MASS. 708 (2002). SUCH WAIVER AND ACKNOWLEDGEMENTS BY TENANT ARE A MATERIAL INDUCEMENT TO LANDLORD ENTERING INTO THIS LEASE.**

4.31 **Occupancy**. Prior to the expiration or earlier termination of the Lease Term, Tenant shall not vacate the Premises without providing Landlord with at least thirty (30) days advance notice. Tenant's furnishing of such notice shall not relieve Tenant of any of its obligations under this Lease. Without limiting any of such obligations, Tenant shall inspect the Premises no less than once each month during the remainder of the Lease Term to ensure that the Premises are in good order and condition.

SECTION 5: DEFAULT AND REMEDIES

5.1 Events of Default.

5.1.1 The occurrence of any one or more of the following events shall constitute a material default and breach of this Lease by Tenant ("Event of Default"):

(a) abandonment of the Premises for greater than ten (10) consecutive days;

(b) failure by Tenant to make any payment of Base Rent, Additional Rent or any other sum payable by Tenant under this Lease within three (3) Business Days after written notice that such payment was not paid when due, provided, however, Landlord need not give any such notice more than once in any twelve (12) month period, and any further failure by Tenant within any such twelve (12) month period to make any payment of Base Rent, Additional Rent or any other sum payable by Tenant under this Lease within three (3) Business Days after its due date shall constitute an immediate Event of Default without any notice from Landlord;

(c) failure by Tenant to observe or perform any covenant or condition of this Lease, other than the making of payments, where such failure shall continue for a period of fifteen (15) Business Days after written notice from Landlord, provided, however, if cure is not reasonably capable of being completed within such time period but is capable of being cured, Tenant shall have such additional reasonable time (not to exceed an additional forty-five (45) calendar days) as is required to cure such default as long as Tenant promptly commences such cure within said fifteen (15) Business Day period and thereafter diligently pursues such cure to completion;

(d) the failure of Tenant to surrender possession of the Premises at the expiration or earlier termination of this Lease in the condition required by this Lease;

(e) (1) the making by Tenant of any general assignment or general arrangement for the benefit of creditors; (2) the filing by or against Tenant of a petition in bankruptcy, including reorganization or arrangement, unless, in the case of a petition filed against Tenant, the same is dismissed or vacated within twenty (20) Business Days; (3) the appointment of a trustee or receiver to take possession of substantially all of Tenant's assets located in the Premises or of Tenant's interest in this Lease; (4) any execution, levy, attachment or other process of law against any property of Tenant or Tenant's interest in this Lease, unless the same is dismissed or vacated within twenty (20) Business Days; (5) adjudication that Tenant is bankrupt; (6) the making by Tenant of a transfer in fraud of creditors; or (7) the failure of Tenant to generally pay its debts as they become due;

(f) any information furnished by or on behalf of Tenant to Landlord in connection with the entry of this Lease is determined to have been materially false, misleading or incomplete when made; or

(g) the failure of Tenant to deliver the Letter of Credit contemporaneously with the execution of this Lease as specified in the Section entitled "Letter of Credit".

5.1.2 Tenant shall notify Landlord promptly of any Event of Default or any facts, conditions or events which, with the giving of notice or passage of time or both, would constitute an Event of Default.

5.1.3 If a petition in bankruptcy is filed by or against Tenant, and if this Lease is treated as an "unexpired lease" under applicable bankruptcy law in such proceeding, then Tenant agrees that Tenant shall not attempt nor cause any trustee to attempt to extend the applicable time period within which this Lease must be assumed or rejected.

5.2 Remedies. If any Event of Default occurs, Landlord may at any time after such occurrence, with or without notice or demand except as stated in this Section 5.2, and without limiting Landlord in the exercise of any right or remedy at law which Landlord may have by reason of such Event of Default, exercise the rights and remedies, either singularly or in combination, as are specified or described in the subsections of this Section 5.2.

5.2.1 Landlord may terminate this Lease and all rights of Tenant under this Lease either immediately or at some later date by giving Tenant written notice that this Lease is terminated. If Landlord so terminates this Lease, then Landlord may recover from Tenant the sum of:

(a) the unpaid Base Rent, Additional Rent and all other sums payable under this Lease which have been earned at the time of termination; plus

(b) interest at the Default Rate on the unpaid Base Rent, Additional Rent and all other sums payable under this Lease which have been earned at the time of termination; plus

(c) the amount by which the unpaid Base Rent, Additional Rent and all other sums payable under this Lease which would have been earned after termination until the time of award exceeds the amount of such rental loss, if any, as Tenant affirmatively proves could have been reasonably avoided and interest on such excess at the Default Rate; plus

(d) the amount by which the aggregate of the unpaid Base Rent, Additional Rent and all other sums payable under this Lease for the balance of the Lease Term after the time of award exceeds the amount of such rental loss, if any, as Tenant affirmatively proves could have been reasonably avoided, with such difference being discounted to present value at the Prime Rate at the time of award; plus

(e) any other amount necessary to compensate Landlord for the detriment proximately caused by Tenant's failure to perform Tenant's obligations under this Lease or which, in the ordinary course of things, would be likely to result from such failure, including, leasing commissions, tenant improvement costs, renovation costs and advertising costs; plus

(f) all such other amounts in addition to or in lieu of the foregoing as may be permitted from time to time by applicable Governmental Requirements.

5.2.2 Landlord shall also have the right, with or without terminating this Lease, to re-enter the Premises and remove all persons and property from the Premises. Landlord may cause property so removed from the Premises to be stored in a public warehouse or elsewhere at the expense and for the account of Tenant.

5.2.3 Landlord shall also have the right, without terminating this Lease, to accelerate and recover from Tenant the sum of:

(a) all unpaid Base Rent, Additional Rent and all other sums payable under this Lease which have accrued as of the date Tenant has paid all amounts due under this subsection 5.2.3; plus,

(b) interest at the Default Rate on the unpaid Base Rent, Additional Rent and all other sums payable under this Lease which have accrued as of the date Tenant has paid all amounts due under this subsection 5.2.3; plus

(c) the amount by which the aggregate of the unpaid Base Rent, Additional Rent and all other sums payable under this Lease for the balance of the Lease Term after the date Tenant has paid all amounts due under this subsection 5.2.3 exceeds the amount of such rental loss, if any, as Tenant affirmatively proves could have been reasonably avoided, with such difference being discounted to present value at the Prime Rate as of the date Tenant has paid all amounts due under this subsection 5.2.3; plus

(d) any other amount necessary to compensate Landlord for the detriment proximately caused by Tenant's failure to perform Tenant's obligations under this Lease or which, in the ordinary course of things, would be likely to result from such failure, including, leasing commissions, tenant improvement costs, renovation costs and advertising costs; plus

(e) all such other amounts in addition to or in lieu of the foregoing as may be permitted from time to time by applicable Governmental Requirements.

5.2.4 If Tenant abandons or surrenders the Premises without Landlord's consent, or if Landlord re-enters the Premises as provided in subsection 5.2.2 or takes possession of the Premises pursuant to legal proceedings or through any notice procedure provided by law, then, if Landlord does not elect to terminate this Lease, Landlord may, from time to time, without terminating this Lease, either (a) recover all Base Rent, Additional Rent and all other sums payable under this Lease as they become due or (b) relet the Premises or any part of the Premises on behalf of Tenant for such term or terms, at such rent or rents and pursuant to such other provisions as Landlord, in its sole discretion, may deem advisable, all with the right, at Tenant's cost, to make alterations and repairs to the Premises and recover any deficiency from Tenant as set forth in subsection 5.2.6.

5.2.5 None of the following remedial actions, singly or in combination, shall be construed as an election by Landlord to terminate this Lease unless Landlord has in fact given Tenant written notice that this Lease is terminated: (a) an act by Landlord to maintain or preserve the Premises; (b) any efforts by Landlord to relet the Premises; (c) any repairs or alterations made by Landlord to the Premises: (d) re-entry, repossession or reletting of the Premises by Landlord pursuant to this Section 5.2; or (e) the appointment of a receiver, upon the initiative of Landlord, to protect Landlord's interest under this Lease. If Landlord takes any of the foregoing remedial action without terminating this Lease, Landlord may nevertheless at any time after taking any such remedial action terminate this Lease by written notice to Tenant.

5.2.6 If Landlord relets the Premises, Landlord shall apply the revenue from such reletting as follows: *first*, to the payment of any indebtedness of Tenant to Landlord other than Base Rent, Additional Rent or any other sums payable by Tenant under this Lease; *second*, to the payment of any cost of reletting (including finders' fees and leasing commissions); *third*, to the payment of the cost of any alterations, improvements, maintenance and repairs to the Premises; and *fourth*, to the payment of Base Rent, Additional Rent and other sums due and payable and unpaid under this Lease. Landlord shall hold and apply the residue, if any, to payment of future Base Rent, Additional Rent and other sums payable under this Lease as the same become due, and shall deliver the eventual balance, if any, to Tenant. Should revenue from letting during any month, after application pursuant to the foregoing provisions, be less than the sum of the Base Rent, Additional Rent and other sums payable under this Lease and Landlord's expenditures for the Premises during such month, Tenant shall be obligated to pay such deficiency to Landlord as and when such deficiency arises.

5.2.7 Pursuit of any of the foregoing remedies shall not preclude pursuit of any of the other remedies provided in this Lease or by law (all such remedies being cumulative), nor shall pursuit of any remedy provided in this Lease constitute a forfeiture or waiver of any Base Rent, Additional Rent or other sum payable under this Lease or of any damages accruing to Landlord by reason of the violation of any of the covenants or conditions contained in this Lease.

5.3 **Right to Perform**. If Tenant shall fail to pay any sum of money, other than Base Rent or Additional Rent, required to be paid by it under this Lease or shall fail to perform any other act on its part to be performed under this Lease, and such failure shall continue for ten (10) Business Days after written notice of such failure by Landlord, or such shorter time if reasonable under the circumstances, Landlord may, but shall not be obligated to, and without waiving or releasing Tenant from any obligations of Tenant, make such payment or perform such other act on Tenant's part to be made or performed as provided in this Lease. Landlord shall have (in addition to any other right or remedy of Landlord) the same rights and remedies in the event of the nonpayment of sums due under this Section 5.3 as in the case of default by Tenant in the payment of Base Rent.

5.4 **Landlord's Default**. Landlord shall not be in default under this Lease unless Landlord fails to perform obligations required of Landlord within twenty (20) Business Days after written notice is delivered by Tenant to Landlord and to the holder of any mortgages or deeds of trust (collectively, "Lender") covering the Premises whose name and address shall have theretofore been furnished to Tenant in writing, specifying the obligation which Landlord has failed to perform; provided, however, that if the nature of Landlord's obligation is such that more than twenty (20) Business Days are required for performance, then Landlord shall not be in default if Landlord or Lender commences performance within such twenty (20) Business Day period and thereafter diligently prosecutes the same to completion. All obligations of Landlord hereunder shall be construed as covenants, not conditions. In the event of any default, breach or violation of Tenant's rights under this Lease by Landlord, Tenant's exclusive remedy shall be either an action for specific performance or an action for actual damages. Tenant hereby waives the benefit of any laws granting it the right to perform Landlord's obligations, a lien upon the property of Landlord and/or upon Rent due Landlord, or the right to terminate this Lease or withhold Rent on account of any Landlord default.

SECTION 6: MISCELLANEOUS PROVISIONS

6.1 **Notices.** Any notice, request, approval, consent or written communication required or permitted to be delivered under this Lease shall be: (a) in writing; (b) transmitted by personal delivery, express or courier service, United States Postal Service in the manner described below, or electronic means of transmitting written material; and (c) deemed to be delivered on the earlier of the date received or four (4) Business Days after having been deposited in the United States Postal service, postage prepaid. Such writings shall be addressed to Landlord or Tenant, as the case may be, at the respective designated addresses set forth opposite their signatures, or at such other address(es) as they may, after the execution date of this Lease, specify by written notice delivered in accordance with this Section 6.1, with copies to the persons at the addresses, if any, designated opposite each party's signature. Those notices which contain a notice of breach or default or a demand for performance may be sent by any of the methods described in clause (b) above, but if transmitted by personal delivery or electronic means, shall also be sent concurrently by certified or registered mail, return receipt requested.

6.2 **Attorney's Fees and Expenses**. In the event either party requires the services of an attorney in connection with enforcing the terms of this Lease, or in the event legal action is brought for the recovery of Base Rent, Additional Rent or any other sums payable under this Lease or for the breach of any covenant or condition of this Lease, or for the restitution of the Premises to Landlord or the eviction of Tenant during the Lease Term or after the expiration or earlier termination of this Lease, the prevailing party in such legal action shall be entitled to a reasonable sum for attorney's and paralegal's fees, expenses and court costs, including those relating to any appeal.

6.3 **No Accord and Satisfaction**. No payment by Tenant or receipt by Landlord of an amount less than the Base Rent or Additional Rent or any other sum due and payable under this Lease shall be deemed to be other than a payment on account of the Base Rent, Additional Rent or other such sum, nor shall any endorsement or statement on any check or any letter accompanying any check or payment be deemed an accord and satisfaction, nor preclude Landlord's right to recover the balance of any amount payable or Landlord's right to pursue any other remedy provided in this Lease or at law.

6.4 **Successors; Joint and Several Liability**. Except as provided in the Section entitled "Limitation on Recourse" and subject to the Section entitled "Assignment and Subletting by Landlord", all of the covenants and conditions contained in this Lease shall apply to and be binding upon Landlord and Tenant and their respective heirs, executors, administrators, successors and assigns. In the event that more than one person, partnership, company, corporation or other entity is included in the term "Tenant", then each such person, partnership, company, corporation or other entity shall be jointly and severally liable for all obligations of Tenant under this Lease.

6.5 **Choice of Law**. This Lease shall be construed and governed by the laws of the state in which the Land is located. Tenant consents to Landlord's choice of venue for any legal proceeding brought by Landlord or Tenant to enforce the terms of this Lease.

6.6 **No Waiver of Remedies**. The waiver by either party of any covenant or condition contained in this Lease shall not be deemed to be a waiver of any subsequent breach of such covenant or condition nor shall any custom or practice which may develop between the parties in the administration of this Lease be construed to waive or lessen the rights of a party to insist on the strict performance by the other party of all of the covenants and conditions of this Lease. No act or thing done by Landlord or Landlord's Agents during the Lease Term shall be deemed an acceptance or a surrender of the Premises, and no agreement to accept a surrender of the Premises shall be valid unless made in writing and signed by Landlord. The mention in this Lease of any particular remedy shall not preclude Landlord from any other remedy it might have, either under this Lease or at law, nor shall the waiver of or redress for any violation of any covenant or condition in this Lease or in any of the rules or regulations attached to this Lease or later adopted by Landlord, prevent a subsequent act, which would have originally constituted a violation, from having all the force and effect of an original violation. The receipt by Landlord of Base Rent, Additional Rent or any other sum payable under this Lease with knowledge of a breach of any covenant or condition in this Lease shall not be deemed a waiver of such breach. The failure of Landlord to enforce any of the rules and regulations attached to this Lease or later adopted, against Tenant or any other tenant in the Building, shall not be deemed a waiver. Any waiver by a party must be in writing and signed by such party to be effective.

6.7 **Offer to Lease**. The submission of this Lease in a draft form to Tenant or its broker or other agent does not constitute an offer to Tenant to lease the Premises. This Lease shall have no force or effect until: (a) it is executed and delivered by Tenant to Landlord: and (b) it is executed and delivered by Landlord to Tenant.

6.8 **Force Majeure**. Except as to the obligation of Tenant to pay Base Rent, Additional Rent or other charges hereunder, in the event that Landlord or Tenant shall be delayed, hindered in or prevented from the performance of any act or obligation under this Lease by reason of acts of God, strikes, lockouts, labor troubles or disputes, inability to procure or shortage of materials or labor, failure of power or utilities, delay in transportation, fire, vandalism, accident, flood, severe weather, other Casualty, Governmental Requirements (including mandated changes in the Tenant Improvements resulting from changes in pertinent Governmental Requirements or interpretations thereof), riot, insurrection, civil commotion, sabotage, explosion, war, natural or local emergency, acts or omissions of others, including Tenant or Landlord (as applicable), or other reasons of a similar or dissimilar nature not solely the fault of, or under the exclusive control of, Landlord or Tenant (as applicable) ("Force Majeure"), then performance of such act or obligation shall be excused for the period of the delay and the period for the performance of any such act or obligation shall be extended for the period equivalent to the period of such delay. In no event shall Landlord's or Tenant's financial difficulties be considered beyond the reasonable control of such party, as applicable, and shall not constitute Force Majeure as to such party hereunder.

6.9 **Landlord's Consent**. Unless otherwise provided in this Lease, whenever Landlord's consent, approval or other action is required under the terms of this Lease, such consent, approval or action shall be subject to Landlord's judgment or discretion exercised in good faith and shall be delivered in writing.

6.10 **Severability; Captions**. If any clause or provision of this Lease is determined to be illegal, invalid, or unenforceable under present or future laws, the remainder of this Lease shall not be affected by such determination, and in lieu of each clause or provision that is determined to be illegal, invalid or unenforceable, there be added as a part of this Lease a clause or provision as similar in terms to such illegal, invalid or unenforceable clause or provision as may be possible and be legal, valid and enforceable. Headings or captions in this Lease are added as a matter of convenience only and in no way define, limit or otherwise affect the construction or interpretation of this Lease.

6.11 **Interpretation**. Whenever a provision of this Lease uses the term (a) "include" or "including", that term shall not be limiting but shall be construed as illustrative, (b) "covenant", that term shall include any covenant, agreement, term or provision, (c) "at law", that term shall mean as specified in any applicable statute, ordinance or regulation having the force of law or as determined at law or in equity, or both, and (d) "day", that uncapitalized word shall mean a calendar day. This Lease shall be given a fair and reasonable interpretation of the words contained in it without any weight being given to whether a provision was drafted by one party or its counsel.

6.12 **Incorporation of Prior Agreement; Amendments**. This Lease contains all of the agreements of the parties to this Lease with respect to any matter covered or mentioned in this Lease, and no prior agreement or understanding pertaining to any such matter shall be effective for any purpose. No provision of this Lease may be amended or added to except by an agreement in writing signed by the parties to this Lease or their respective successors in interest.

6.13 **Authority.** If Tenant is a partnership, company, corporation or other entity, Tenant represents and warrants to Landlord that each individual executing this Lease on behalf of Tenant is duly authorized to so execute and deliver this Lease and that all partnership, company, corporation or other entity actions and consents required for execution of this Lease have been given, granted or obtained. If Tenant is a partnership, company, corporation or other business organization, it shall, within ten (10) Business Days after demand by Landlord, deliver to Landlord satisfactory evidence of the due authorization of this Lease and the authority of the person executing this Lease on its behalf.

6.14 **Time or Essence**. Time is of the essence with respect to the performance of every covenant and condition of this Lease.

6.15 **Survival of Obligations**. Notwithstanding anything contained in this Lease to the contrary or the expiration or earlier termination of this Lease, any and all obligations of either party accruing prior to the expiration or termination of this Lease shall survive the expiration or earlier termination of this Lease, and either party shall promptly perform all such obligations whether or not this Lease has expired or terminated. Such obligations shall include any and all indemnity obligations set forth in this Lease.

6.16 **Consent to Service**. If for any reason Tenant fails or refuses to accept service of process at Tenant's address for notices hereunder as provided in Section 6.1 and if Landlord is unable for any reason to serve process on a registered agent of Tenant in the Commonwealth of Massachusetts, then Tenant irrevocably consents to the service of process during the Term or any time thereafter that Tenant continues to occupy all or part of the Premises of any action or proceeding at the address of the Premises. Nothing in this Section 6.16 shall affect the right to serve process in any other manner permitted by law.

6.17 **Landlord's Authorized Agents**. Notwithstanding anything contained in the Lease to the contrary, including without limitation, the definition of Landlord's Agents, only officers of Landlord, are authorized to amend, renew or terminate this Lease, or to compromise any of Landlord's claims under this Lease or to bind Landlord in any manner. Without limiting the effect of the previous sentence, no property manager or broker shall be considered an authorized agent of Landlord to amend, renew terminate this Lease, to compromise any of Landlord's claims under this Lease or to bind Landlord in any manner.

6.18 **Waiver of Jury Trial**. Landlord and Tenant irrevocably waive the respective rights to trial by jury in any action proceeding or counterclaim brought by either against the other (whether in contract or tort) on any matter arising out of or relating in any way to this Lease, the relationship of Landlord and Tenant or Tenant's use or occupancy of the Premises.

6.19 **Specially Designated National or Blocked Person**. Tenant hereby represents its compliance with all applicable anti-money laundering laws, including, without limitation, the USA Patriot Act, and the laws administered by the United States Treasury Department's Office of Foreign Assets Control, including, without limitation, Executive Order 13224. Tenant further represents (i) that it is not, and it is not owned or controlled directly or indirectly by any person or entity, on the Specially Designated Nationals (SDN) List published by the United States Treasury Department's Office of Foreign Assets Control and (ii) that it is not a person otherwise identified by government or legal authority as a person with whom a U.S. Person is prohibited from transacting business. As of the date hereof, a list of such designations is available at http://www.treasury.gov/resource-center/sanctions/SDN-List/Pages/default.aspx and the text of Executive Order 13224 is available at http://www.stategov/j/ct/rls/other/des/122570.htm. Tenant covenants and agrees to deliver to Landlord any certification or other evidence requested from time to time by Landlord in its reasonable discretion, confirming Tenant's compliance with this Section 6.19.

6.20 Letter of Credit.

6.20.1 Concurrently with Tenant's execution of this Lease, Tenant shall deliver to Landlord, as collateral for the full performance by Tenant of all of its obligations under this Lease and for all losses and damages Landlord may suffer as a result of any default by Tenant under this Lease, a standby, unconditional, irrevocable, transferable letter of credit (the "Letter of Credit") in accordance with the requirements set forth in Exhibit F attached hereto and containing the terms required herein, in the face amount of Two Million Three Hundred Eighty-Three Thousand Eight Hundred Twenty-Five and 00/100 Dollars ($2,383,825.00) (the "Letter of Credit Amount"), naming Landlord as beneficiary, issued (or confirmed) by a financial institution acceptable to Landlord in Landlord's sole discretion, permitting multiple and partial draws thereon, and otherwise in form acceptable to Landlord in its sole discretion. Tenant shall cause the Letter of Credit to be continuously maintained in effect (whether through replacement, renewal or extension) in the Letter of Credit Amount through the date (the "Final LC Expiration Date") that is ninety (90) days after the scheduled expiration date of the Lease Term or any Extension Term. If the Letter of Credit held by Landlord expires earlier than the Final LC Expiration Date (whether by reason of a stated expiration date or a notice of termination or non-renewal given by the issuing bank), Tenant shall deliver a new Letter of Credit or certificate of renewal or extension to Landlord not later than thirty (30) days prior to the expiration date of the Letter of Credit then held by Landlord. Any renewal or replacement Letter of Credit shall comply with all of the provisions of this Section 6.20 and the requirements set forth in Exhibit F attached hereto, shall be irrevocable, transferable and shall remain in effect (or be automatically renewable) through the Final LC Expiration Date upon the same terms as the expiring Letter of Credit or such other terms as may be acceptable to Landlord in its sole discretion.

6.20.2 Landlord shall have the right to draw upon the Letter of Credit, in whole or in part, at any time and from time to time:

(1) If an Event of Default occurs; or

(2) If the Letter of Credit held by Landlord expires earlier than the Final LC Expiration Date (whether by reason of a stated expiration date or a notice of termination or non-renewal given by the issuing bank), and Tenant fails to deliver to Landlord, at least thirty (30) days prior to the expiration date of the Letter of Credit then held by Landlord, a renewal or substitute Letter of Credit that is in effect and that complies with the provisions of this Section 6.20.

No condition or term of this Lease shall be deemed to render the Letter of Credit conditional to justify the issuer of the Letter of Credit in failing to honor a drawing upon such Letter of Credit in a timely manner. Tenant hereby acknowledges and agrees that Landlord is entering into this Lease in material reliance upon the ability of Landlord to draw upon the Letter of Credit upon the occurrence of any Event of Default by Tenant under this Lease or upon the occurrence of any of the other events described above in this subsection 6.20.2.

6.20.3 The proceeds of the Letter of Credit may be applied by Landlord against any Base Rent, Additional Rent or other sums or charges payable by Tenant under this Lease that is not paid when due and/or to pay for all losses and/or damages that Landlord has suffered or that Landlord reasonably estimates that it will suffer as a result of any default by Tenant under this Lease. Landlord shall deposit any unused proceeds in a separate account in the name of Landlord or its designee at a financial institution selected by Landlord in its sole discretion (the "LC Proceeds Account"). Landlord may apply funds from the LC Proceeds Account against any Base Rent, Additional Rent or other sums or charges payable by Tenant under this Lease that is not paid when due and/or to pay for all losses and/or damages that Landlord has suffered or that Landlord reasonably estimates that it will suffer as a result of any default by Tenant under this Lease. Tenant hereby grants Landlord a security interest in the LC Proceeds Account and agrees that, in addition to all other rights and remedies available to Landlord under applicable Governmental Requirements, Landlord shall have all rights of a secured party under the Massachusetts Uniform Commercial Code with respect to the LC Proceeds Account. The LC Proceeds Account shall be under the sole control of Landlord. Tenant shall not have any right to direct the disposition of funds from the LC Proceeds Account or any other right or interest in the LC Proceeds Account. Tenant shall, at any time and from time to time, execute, acknowledge and deliver such documents and take such actions as Landlord or the bank with which the LC Proceeds Account is maintained may reasonably request concerning the creation or perfection of the security interest granted to Landlord in (including Landlord's control of) the LC Proceeds Account or to effect the provisions of this subsection 6.20.3. Tenant does hereby make, constitute and appoint Landlord its true and lawful attorney-in-fact, for it and in its name, place and stead, to execute and deliver all such instruments and documents, and to do all such other acts and things, as Landlord may deem to be necessary or desirable to protect and preserve the rights granted to Landlord under this subsection 6.20.3. Tenant hereby grants to Landlord the full power and authority to appoint one or more substitutes to perform any of the acts that Landlord is authorized to perform under this subsection 6.20.3, with a right to revoke such appointment of substitution at Landlord's pleasure. The power of attorney granted pursuant to this subsection 6.20.3 is coupled with an interest and therefore is irrevocable. Any person dealing with Landlord may rely upon the representation of Landlord relating to any authority granted by this power of attorney, including the intended scope of the authority, and may accept the written certificate of Landlord that this power of attorney is in full force and effect. Photographic or other facsimile reproductions of this executed Lease may be made and delivered by Landlord and may be relied upon by any person to the same extent as though the copy were an original. Anyone who acts in reliance upon any representation or certificate of Landlord, or upon a reproduction of this Lease, shall not be liable for permitting Landlord to perform any act pursuant to this power of attorney. Provided Tenant has performed all of its obligations under this Lease, Landlord agrees to pay to Tenant within thirty (30) days after the Final LC Expiration Date the amount of any proceeds of the Letter of Credit received by Landlord and not applied against any Base Rent, Additional Rent or other sums or charges payable by Tenant under this Lease that was not paid when due and/or used to pay for any losses and/or damages suffered by Landlord (or reasonably estimated by Landlord that it will suffer) as a result of any default by Tenant under this Lease; provided, that if prior to the Final LC Expiration Date a voluntary petition is filed by Tenant, or an involuntary petition is filed against Tenant by any of Tenant's creditors, under the Federal Bankruptcy Code, then Landlord shall not be obligated to make such payment in the amount of the unused Letter of Credit proceeds until either all preference issues relating to payments under this Lease have been resolved in such bankruptcy or reorganization case or such bankruptcy or reorganization case has been dismissed, in each case pursuant to a final court order not subject to appeal or any stay pending appeal.

6.20.4 If, as result of any application or use by Landlord of all or any part of the Letter of Credit, the amount of the Letter of Credit shall be less than the Letter of Credit Amount, Tenant shall, within five (5) days thereafter, provide Landlord with additional letter(s) of credit in an amount equal to the deficiency (or a replacement letter of credit in the total Letter of Credit Amount), and any such additional (or replacement) letter of credit shall comply with all of the provisions of this subsection 6.20.4, and, within ten (10) days after receipt by Landlord of such additional (or replacement) letter of credit, Landlord shall return to Tenant the amount of any proceeds of the Letter of Credit received by Landlord and not applied in accordance with the foregoing provisions of this Section 6.20. If Tenant fails to comply with the foregoing provisions of this subsection 6.20.4, then, notwithstanding anything to the contrary contained in this Lease, such failure shall constitute an uncurable Event of Default by Tenant. Tenant further covenants and warrants that it will neither assign nor encumber the Letter of Credit or any part thereof or any interest in the LC Proceeds Account and that neither Landlord nor its successors or assigns will be bound by any such assignment, encumbrance, attempted assignment or attempted encumbrance.

6.20.5 Landlord may, at any time and without notice to Tenant and without first obtaining Tenant's consent thereto, transfer all or any portion of its interest in and to the Letter of Credit to another Person, including the holder of any mortgage, and/or to have the Letter of Credit reissued in the name of the holder of any mortgage. If Landlord transfers its interest in the Building and transfers the Letter of Credit (or any proceeds thereof then held by Landlord) in whole or in part to the transferee, Landlord shall, without any further agreement between the parties hereto, thereupon be released by Tenant from all liability therefor. The provisions hereof shall apply to every transfer or assignment of all or any part of the Letter of Credit to a new landlord. In connection with any such transfer of the Letter of Credit by Landlord, Tenant shall, at Tenant's sole cost and expense, execute and submit to the issuer of the Letter of Credit such applications, documents and instruments as may be necessary to effectuate such transfer. Tenant shall be responsible for paying the issuer's transfer and processing fees in connection with any transfer of the Letter of Credit and, if Landlord advances any such fees (without having any obligation to do so), Tenant shall reimburse Landlord for any such transfer or processing fees within ten (10) days after Landlord's written request therefor.

6.20.6 Landlord and Tenant (1) acknowledge and agree that in no event or circumstance shall the Letter of Credit or any renewal thereof or substitute therefor or any proceeds thereof (including the LC Proceeds Account) be deemed to be or treated as a "security deposit" under any Governmental Requirements applicable to security deposits in the commercial context ("Security Deposit Laws"), (2) acknowledge and agree that the Letter of Credit (including any renewal thereof or substitute therefor or any proceeds thereof) is not intended to serve as a security deposit, and the Security Deposit Laws shall have no applicability or relevancy thereto, and (3) waive any and all rights, duties and obligations either party may now or, in the future, will have relating to or arising from the Security Deposit Laws.

6.20.7 Provided no Event of Default has occurred, the Letter of Credit Amount shall, subject to the terms of this Section 6.20.7, reduce after each Reduction Date (as hereinafter defined) in accordance with the following provisions of this Section 6.20.7, provided that in no event shall the Letter of Credit Amount be reduced below $1,191,912.50. The "Reduction Dates" shall be the third anniversary of the Rent Commencement Date and the fifth anniversary of the Rent Commencement Date. Subject to the following provisions of this Section 6.20.7, the Letter of Credit Amount shall reduce from $2,383,825.00 to $1,787,868.75 on the third anniversary of the Rent Commencement Date and from $1,787,868.75 to $1,191,912.50 on the fifth anniversary of the Rent Commencement Date. After the first Reduction Date set forth above, Tenant may deliver to Landlord a proposed amendment to the Letter of Credit whereby the Letter of Credit Amount shall be reduced from $2,383,825.00 to $1,787,868.75 and is otherwise not modified or amended. Provided no Event of Default has occurred prior to such first Reduction Date and Tenant shall have delivered to Landlord prior to such first Reduction Date (i) evidence satisfactory to Landlord that, subsequent to the Effective Date, the United States Food and Drug Administration (the "FDA") has given marketing approval of volanesorsen or one of Tenant's other medical products and (ii) if not volanesorsen, evidence satisfactory to Landlord that the revenue potential of such other medical product exceeds the Minimum Revenue Potential (as hereinafter defined), Landlord shall approve such proposed amendment to the Letter of Credit. After the second Reduction Date set forth above, Tenant may deliver to Landlord a proposed amendment to the Letter of Credit whereby the Letter of Credit Amount shall be reduced from $1,787,868.75 to $1,191,912.50 and is otherwise not modified or amended. Provided no Event of Default has occurred prior to such second Reduction Date and Tenant shall have delivered to Landlord prior to the first Reduction Date (i) evidence satisfactory to Landlord that, subsequent to the Effective Date, the FDA has given marketing approval of volanesorsen or one of Tenant's other medical products and (ii) if not volanesorsen, evidence satisfactory to Landlord that the revenue potential of such other medical product exceeds the Minimum Revenue Potential, Landlord shall approve such proposed amendment to the Letter of Credit. As used herein, the phrase "Minimum Revenue Potential" shall mean the revenue potential of volanesorsen as represented to Landlord by Tenant prior to the Effective Date.

6.20.8 Subject to the provisions of this subsection 6.20.8, in lieu of the delivery to Landlord of the Letter of Credit concurrently with the execution of this Lease as provided in subsection 6.20.1, Tenant may deposit with Landlord Two Million Three Hundred Eighty-Three Thousand Eight Hundred Twenty-Five and 00/100 Dollars ($2,383,825.00) by wire transfer in accordance with wire transfer instructions to be provided by Landlord (the "Cash Deposit Amount"). The Cash Deposit Amount may be commingled with other funds, and no interest shall be paid thereon. If Tenant elects to deposit with Landlord the Cash Deposit Amount in lieu of the delivery to Landlord of the Letter of Credit in accordance with this subsection 6.20.8, then Tenant shall deliver to Landlord the Letter of Credit no later than twenty-one (21) days after the Effective Date. If Tenant fails to deliver to Landlord the Letter of Credit within twenty-one (21) days after the Effective Date and if Landlord notifies Tenant of such failure (the "L/C Default Notice"), then, if Tenant fails to deliver to Landlord the Letter of Credit within twenty-one (21) days after receipt by Tenant of the L/C Default Notice, such failure shall constitute an Event of Default by Tenant and Tenant shall pay to Landlord a charge of $10,000 per month until such time as Tenant delivers to Landlord the Letter of Credit. If Tenant delivers to Landlord the Letter of Credit no later than the date that is twenty-one (21) days after receipt by Tenant of the L/C Default Notice, then Landlord shall return the Cash Deposit Amount to Tenant within five (5) Business Days after receipt by Landlord of the Letter of Credit.

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IN WITNESS WHEREOF, this Lease has been executed as of the 5th day of April, 2018 (the "Effective Date").

Designated Address for Landlord:

MEPT Seaport 13 Stillings LLC
c/o Bentall Kennedy (US) LP
Attn. Director of Asset Management
7315 Wisconsin Avenue
Suite 350 West
Bethesda, MD 20814
Fax: 301-656-9339

with copies to.

MEPT Seaport 13 Stillings LLC
c/o Bentall Kennedy (US) LP
Attention: Director of Asset Management
1215 Fourth Avenue
Suite 2400
Seattle, WA 98161
Fax: 206-682-4769

and

MEPT Seaport 13 Stillings LLC
c/o NewTower Trust Company
7315 Wisconsin Avenue
Suite 350 West
Bethesda, MD 20814
Attn: President - Robert B. Edwards
Fax: 240-235-9981

with a copy to Manager at:

CBRE/New England, Asset Services
101 Seaport Boulevard, 6th Floor
Boston, Massachusetts 02210
Attention: John F. Sullivan, RPA, CCIM, Vice President/General Manager
Facsimile:

LANDLORD:

MEPT Seaport 13 Stillings LLC, a Delaware limited liability company

By: MEPT Edgemoor REIT LLC, a Delaware limited liability company, its Manager

By: Bentall Kennedy (U.S.) Limited Partnership, its Authorized Signatory

By: Bentall Kennedy (U.S.) G.P., LLC, its General Partner

By: */s/ Philip Down*
Name: Philip Down
Its: Vice President

By: */s/ Peter Potrykus*
Name: Peter Potrykus
Its:

Designated Address for Tenant:

Akcea Therapeutics, Inc.
55 Cambridge Parkway
Cambridge, MA 02142

Attn: Chief Operating Officer

TENANT

Akcea Therapeutics, Inc., a Delaware Corporation

By: */s/ Paula Soteropoulos*
Name: Paula Soteropoulos
Its: Chief Executive Officer

EXHIBIT A to Lease

[Intentionally Omitted]

Exhibit A

EXHIBIT B to Lease

PLAN SHOWING LOCATION OF THE PREMISES

[See attached floor plan. This floor plan is intended only to show the general outline of the Premises as of the Effective Date.]

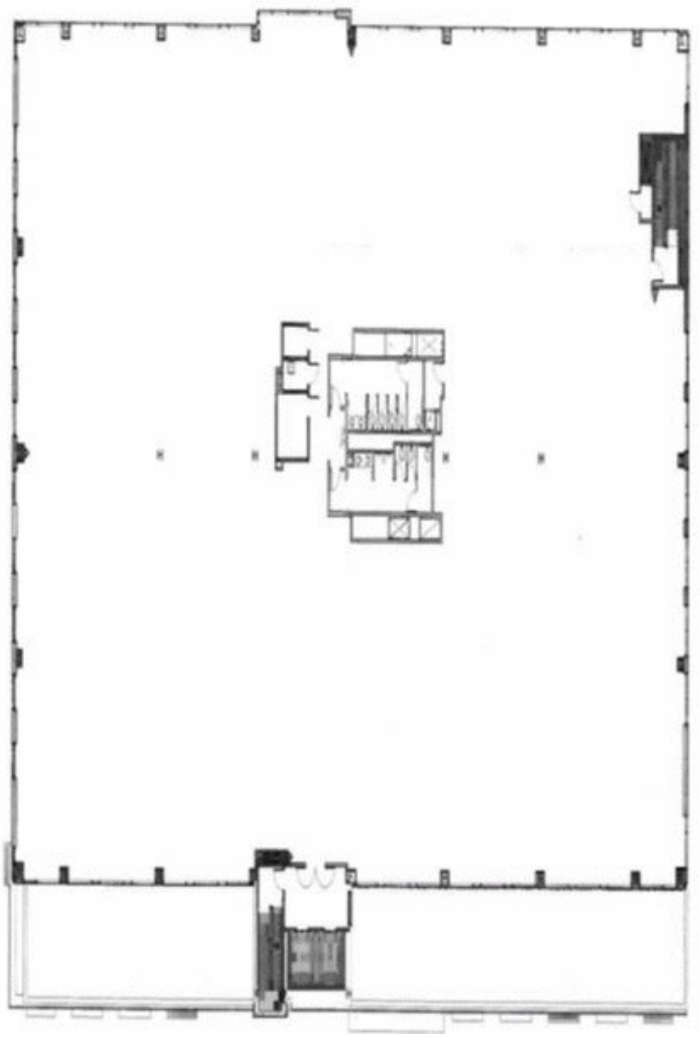

Exhibit B

EXHIBIT C to Lease

TENANT IMPROVEMENTS

1. **Acceptance of Premises**. Except as set forth in this Exhibit, Tenant accepts the Premises in their "AS-IS" condition on the date that this Lease is entered into.

2. **Space Plans**.

(a) Preparation and Delivery. Within two business days after Tenant's execution of this Lease, Tenant shall meet with CBT Architects or another design consultant selected by Landlord (the "**Architect**") to discuss the nature and extent of all improvements that Tenant proposes to install in the Premises and, at such meeting, provide the Architect with all necessary data and information needed by the Architect to prepare initial space plans therefor as required by this paragraph. On or before the tenth day following the date of this Lease, Landlord shall deliver to Tenant a space plan prepared by the Architect depicting improvements to be installed in the Premises (the "**Space Plans**").

(b) Approval Process. Tenant shall notify Landlord whether it approves of the submitted Space Plans within three business days after Landlord's submission thereof. If Tenant disapproves of such Space Plans, then Tenant shall notify Landlord thereof specifying in reasonable detail the reasons for such disapproval, in which case Landlord shall, within three business days after such notice, revise such Space Plans in accordance with Tenant's objections and submit to Tenant for its review and approval. Tenant shall notify Landlord in writing whether it approves of the resubmitted Space Plans within one business day after its receipt thereof. This process shall be repeated until the Space Plans have been finally approved by Tenant and Landlord. If Tenant fails to notify Landlord that it disapproves of the initial Space Plans within three business days (or, in the case of resubmitted Space Plans, within one business day) after the submission thereof, then Tenant shall be deemed to have approved the Space Plans in question.

3. Working Drawings.

(a) **Preparation and Delivery**. On or before the date which is 35 days following the date on which the Space Plans are approved (or deemed approved) by Tenant and Landlord, Landlord shall cause to be prepared final working drawings of all improvements to be installed in the Premises and deliver the same to Tenant for its review and approval (which approval shall not be unreasonably withheld, delayed or conditioned). Such working drawings shall be prepared by CBT Architects or another design consultant selected by Landlord (whose fee shall be included in the Total Construction Costs [defined below]).

(b) **Approval Process**. Tenant shall notify Landlord whether it approves of the submitted working drawings within three business days after Landlord's submission thereof. If Tenant disapproves of such working drawings, then Tenant shall notify Landlord thereof specifying in reasonable detail the reasons for such disapproval, in which case Landlord shall, within five business days after such notice, revise such working drawings in accordance with Tenant's objections and submit the revised working drawings to Tenant for its review and approval. Tenant shall notify Landlord in writing whether it approves of the resubmitted working drawings within one business day after its receipt thereof. This process shall be repeated until the working drawings have been finally approved by Landlord and Tenant. If Tenant fails to notify Landlord that it disapproves of the initial working drawings within three business days (or, in the case of resubmitted working drawings, within one business day) after the submission thereof, then Tenant shall be deemed to have approved the working drawings in question. Any delay caused by Tenant's unreasonable withholding of its consent or delay in giving its written approval as to such working drawings shall constitute a Tenant Delay Day (defined below). If the working drawings are not fully approved (or deemed approved) by both Landlord and Tenant by the 15th business day after the delivery of the initial draft thereof to Tenant, then each day after such time period that such working drawings are not fully approved (or deemed approved) by both Landlord and Tenant shall constitute a Tenant Delay Day.

(c) **Landlord's Approval; Performance of Tenant Improvements**. If any of Tenant's proposed construction work will affect the Building's structure or the Building's systems, then the working drawings pertaining thereto must be approved by the Building's engineer of record. Landlord's approval of such working drawings shall not be unreasonably withheld, provided that (1) they comply with all Laws, (2) the improvements depicted thereon do not adversely affect (in the reasonable discretion of Landlord) the Building's structure or the Building's systems (including the Building's restrooms or mechanical rooms), the exterior appearance of the Building, or the appearance of the Building's common areas or elevator lobby areas, (3) such working drawings are sufficiently detailed to allow construction of the improvements in a good and workmanlike manner, and (4) the improvements depicted thereon conform to the rules and regulations promulgated from time to time by Landlord for the construction of tenant improvements (a copy of which has been delivered to Tenant). As used herein, "**Working Drawings**" means the final working drawings approved by Landlord, as amended from time to time by any approved changes thereto, and "**Tenant Improvements**" means all improvements to be constructed in accordance with and as indicated on the Working Drawings, together with any work required by governmental authorities to be made to other areas of the Building as a result of the improvements indicated by the Working Drawings. Notwithstanding the foregoing, "**Tenant Improvements**" shall not include Telecommunication Facilities, trade fixtures and office furniture and equipment, which shall be installed by Tenant at Tenant's sole cost and expense. Landlord's approval of the Working Drawings shall not be a representation or warranty of Landlord that such drawings are adequate for any use or comply with any Governmental Requirements, but shall merely be the consent of Landlord thereto. Tenant shall, at Landlord's request, sign the Working Drawings to evidence its review and approval thereof. After the Working Drawings have been approved, Landlord shall cause the Tenant Improvements to be performed in substantial accordance with the Working Drawings.

4. **Bidding of Tenant Improvements**. Prior to commencing construction of the Tenant Improvements, Landlord shall competitively bid the construction of the Tenant Improvements (fee and general conditions only) to at least three construction managers approved by Landlord. After receipt of such bids, Landlord shall select the construction manager for the construction of the Tenant Improvements. After Landlord selects the construction manager for the construction of the Tenant Improvements, the selected construction manager shall solicit bids from at least three subcontractors for all major trades expected to exceed $25,000.00 for the construction of the Tenant Improvements. After receipt of such bids, Landlord shall select the subcontractor for each of the major trades. If the estimated Total Construction Costs are expected to exceed the Tenant Improvement Allowance, Tenant shall be allowed to review the submitted bids from such subcontractors to value engineer any of Tenant's requested alterations. In such case, Tenant shall notify Landlord of any items in the Working Drawings that Tenant desires to change within two business days after Landlord's submission of such bids to Tenant. If Tenant fails to notify Landlord of its election within such two business day period, then Tenant shall be deemed to have approved such bids. Within five business days following Landlord's submission of the initial subcontractors' bids to Tenant under the foregoing provisions (if applicable), Tenant shall have completed all of the following items: (a) finalized with Landlord's representative and the construction manager the pricing of any requested revisions to the subcontractors' bids for the construction of the Tenant Improvements and (b) approved in writing any overage in the Total Construction Costs in excess of the Tenant Improvement Allowance, failing which each day after such five business day period shall constitute a Tenant Delay Day.

5. **Change Orders**. Tenant may initiate changes in the Tenant Improvements. Each such change must receive the prior written approval of Landlord, such approval not to be unreasonably withheld or delayed; however, (a) if such requested change would adversely affect (in the reasonable discretion of Landlord) (1) the Building's structure or the Building's systems (including the Building's restrooms or mechanical rooms), (2) the exterior appearance of the Building, or (3) the appearance of the Building's common areas or elevator lobby areas, or (b) if any such requested change might delay the Commencement Date, Landlord may withhold its consent in its sole and absolute discretion. Landlord shall, upon completion of the Tenant Improvements, cause to be prepared an accurate architectural "as-built" plan of the Tenant Improvements as constructed, which plan shall be incorporated into this Exhibit C by this reference for all purposes. If Tenant requests any changes to the Tenant Improvements described in the Space Plans or the Working Drawings, then such increased costs and any additional design costs incurred in connection therewith as the result of such changes shall be added to the Total Construction Costs.

6. **Definitions**. As used herein, a "**Tenant Delay Day**" means each day of delay in the performance of the Tenant Improvements that occurs (a) because Tenant fails to timely furnish any information or deliver or approve any required documents such as the Space Plans or Working Drawings (whether preliminary, interim revisions or final), pricing estimates, construction bids, and the like, (b) because of any change by Tenant to the Space Plans or Working Drawings, (c) because Tenant fails to attend any meeting with Landlord, the Architect, any design professional, or any contractor or construction manager, or their respective employees or representatives, as may be required or scheduled hereunder or otherwise necessary in connection with the preparation or completion of any construction documents, such as the Space Plans or Working Drawings, or in connection with the performance of the Tenant Improvements, (d) because of any specification by Tenant of materials or installations in addition to or other than Landlord's standard finish-out materials, (e) because a Tenant Party interferes with the performance of the Tenant Improvements in connection with any early entry into the Premises pursuant to Section 2.3 of this Lease or (f) because a Tenant Party otherwise delays completion of the Tenant Improvements. As used herein "**Substantial Completion**," "**Substantially Completed**," and any derivations thereof mean the Tenant Improvements in the Premises are substantially completed (as reasonably determined by Landlord) in substantial accordance with the Working Drawings. Substantial Completion shall have occurred even though minor details of construction, decoration and mechanical adjustments remain to be completed by Landlord.

7. **Walk-Through; Punchlist**. When Landlord considers the Tenant Improvements in the Premises to be Substantially Completed, Landlord will notify Tenant and, within three business days thereafter, Landlord's representative and Tenant's representative shall conduct a walk-through of the Premises and identify any necessary touch-up work, repairs and minor completion items that are necessary for final completion of the Tenant Improvements. Neither Landlord's representative nor Tenant's representative shall unreasonably withhold his or her agreement on punchlist items. Landlord shall use reasonable efforts to cause the construction manager performing the Tenant Improvements to complete all punchlist items within 30 days after agreement thereon; however, Landlord shall not be obligated to engage overtime labor in order to complete such items.

8. **Excess Costs**. The entire cost of performing the Tenant Improvements (including design of and space planning for the Tenant Improvements and preparation of the Working Drawings and any changes thereto and the final "as-built" plan of the Tenant Improvements, costs of construction labor and materials, electrical usage during construction, additional janitorial services, general tenant signage, related taxes and insurance costs, licenses, permits, certifications, surveys and other approvals required by Governmental Requirements, and the construction supervision fee referenced in Section 10 of this Exhibit, all of which costs are herein collectively called the "**Total Construction Costs**") in excess of the Tenant Improvements Allowance (hereinafter defined) shall be paid by Tenant. Upon approval of the Working Drawings and selection of the construction manager and the subcontractors for the major trades, Tenant shall promptly (a) execute a work order agreement prepared by Landlord which identifies such drawings and itemizes the Total Construction Costs and sets forth the Tenant Improvements Allowance, and (b) pay to Landlord 100% of the amount by which Total Construction Costs exceed the Tenant Improvements Allowance. Upon Substantial Completion of the Tenant Improvements and before Tenant occupies the Premises to conduct business therein, Tenant shall pay to Landlord an amount equal to the Total Construction Costs (as adjusted for any approved changes to the Tenant Improvements), less (1) the amount of the advance payment already made by Tenant, and (2) the amount of the Construction Allowance. In the event of default of payment of such excess costs, Landlord (in addition to all other remedies) shall have the same rights as for an Event of Default under this Lease.

9. **Tenant Improvement Allowance**. Landlord shall provide to Tenant a construction allowance not to exceed $125.00 per rentable square foot in the Premises (the "**Tenant Improvement Allowance**") to be applied toward the Total Construction Costs, as adjusted for any changes to the Tenant Improvements. The Tenant Improvement Allowance shall not be disbursed to Tenant in cash, but shall be applied by Landlord to the payment of the Total Construction Costs, if, as, and when the cost of the Tenant Improvements are actually incurred and paid by Landlord. The Tenant Improvement Allowance must be used (that is, the Tenant Improvements must be fully complete and the Tenant Improvement Allowance disbursed) within six months following the Commencement Date or shall be deemed forfeited with no further obligation by Landlord with respect thereto, time being of the essence with respect thereto.

10. **Construction Supervision**. Landlord or its Affiliate or agent shall supervise the Tenant Improvements, make disbursements required to be made to the construction manager, act as a liaison between the construction manager and Tenant and coordinate the relationship between the Tenant Improvements, the Building and the Building's systems. In consideration for Landlord's construction supervision services, Tenant shall pay to Landlord a construction supervision fee equal to five percent (5%) of the Total Construction Costs.

11. **Construction Representatives**. Landlord's and Tenant's representatives for coordination of construction and approval of change orders will be as follows, provided that either party may change its representative upon written notice to the other:

Landlord's Representative:	Thomas J. Hamill c/o Redgate 265 Franklin Street Boston, MA 02110 Telephone: 617-904-7012
Tenant's Representative:	Molly Heath c/o Jones Lang LaSalle One Post Office Square Boston, MA 02113 Telephone: 617-316-6489

Exhibit C

EXHIBIT D to Lease

FORM OF LEASE MEMORANDUM

MEPT Seaport 13 Stillings LLC, a Delaware limited liability company, as Landlord, and Akcea Therapeutics, a Delaware corporation, as Tenant, executed that Lease dated as of _____, 2018 (the "Lease").

The Lease contemplates that this document shall be delivered and executed as set forth in the Section thereof entitled "Lease Memorandum". This Lease Memorandum shall become part of the Lease.

Landlord and Tenant agree as follows:

1. The Commencement Date is _____.

2. The end of the initial Lease Term is _____.

3. The Lease is in full force and effect as of the date of this Lease Memorandum. By execution of this Lease Memorandum, Tenant confirms that, as of the date of this Lease Memorandum, (a) Tenant has no claims against Landlord and (b) Landlord has fulfilled all of its obligations under the Lease required to be fulfilled by Landlord.

4. The Premises consist of approximately thirty thousand one hundred seventy-five (30,175) rentable square feet. The Premises are depicted on the plans attached hereto as Exhibit A.

5. The amount of Base Rent and the portion of the Lease Term during which such Base Rent is payable shall be determined from the following table:

Applicable Portion of Lease Term		Per/Rentable Sq. Ft./ Annum	Annual Base Rent	Monthly Base Rent
Beginning	Ending			
Month 1	Month 12	$ 74.00	$ 2,232,950.00	$ 186,079.16
Month 13	Month 24	$ 75.00	$ 2,263,125.00	$ 188,593.75
Month 25	Month 36	$ 76.00	$ 2,293,300.00	$ 191,108.33
Month 37	Month 48	$ 77.00	$ 2,323,475.00	$ 193,622.92
Month 49	Month 60	$ 78.00	$ 2,353,650.00	$ 196,137.50
Month 61	Month 72	$ 79.00	$ 2,383,825.00	$ 198,652.08
Month 73	Month 84	$ 80.00	$ 2,414,000.00	$ 201,166.67
Month 85	Month 96	$ 81.00	$ 2,444,175.00	$ 203,681.25
Month 97	Month 108	$ 82.00	$ 2,474,350.00	$ 206,195.83
Month 109	Month 120	$ 83.00	$ 2,504,525.00	$ 208,710.42
Month 121	Month 123	$ 84.00	$ 2,534,700.00	$ 211,225.00

6. Tenant's Pro Rata Share is 30,175/120,143 = twenty-five and 16/100 percent (25.16%).

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Exhibit D

Dated: _____

LANDLORD:

MEPT Seaport 13 Stillings LLC, a Delaware limited liability company

By: MEPT Edgemoor REIT LLC, a Delaware limited liability company, its Manager

By: Bentall Kennedy (U.S.) Limited Partnership, its Authorized Signatory

By: Bentall Kennedy (U.S.) G.P., LLC, its General Partner

By: _____
Name: _____
Its: _____

By: _____
Name: _____
Its: _____

Dated: _____

TENANT:

_____, a _____

By: _____
Name: _____
Its: _____

Exhibit D

EXHIBIT E to Lease

RULES AND REGULATIONS

1. No sign, placard, picture, advertisement, name or notice shall be installed or displayed on any part of the outside or inside of the Building or Land without the prior written consent of the Landlord. Landlord shall have the right to remove, at Tenant's expense and without notice, any sign installed or displayed in violation of this rule. All approved signs or lettering on doors and walls shall be printed, painted, affixed or inscribed at the expense of Tenant by a person chosen by Landlord.

2. If Landlord objects in writing to any curtains, blinds, shades, screens or hanging plants or other similar objects attached to or used in connection with any window or door of the Premises, Tenant shall immediately discontinue such use. No awning shall be permitted on any part of the Premises. Tenant shall not place anything against or near glass partitions or doors or windows, which may appear unsightly from outside the Premises.

3. Tenant shall not obstruct any sidewalk, halls, passages, exits, entrances, elevators, escalators, or stairways of the Building. The halls, passages, exits, entrances, elevators, escalators and stairways are not open to the general public. Landlord shall in all cases retain the right to control and prevent access to such areas of all persons whose presence in the judgment of Landlord would be prejudicial to the safety, character, reputation and interest of the Land, Building and the Building's tenants; provided that, nothing in this Lease contained shall be construed to prevent such access to persons with whom any Tenant normally deals in the ordinary course of its business, unless such persons are engaged in illegal activities. Tenant shall not go upon the roof of the Building.

4. The directory of the Building will be provided exclusively for the display of the name and location of tenants only, and Landlord reserves the right to exclude any other names therefrom.

5. All cleaning and janitorial services for the Building and the Premises shall be provided exclusively through Landlord, and except with the written consent of Landlord, no person or persons other than those approved by Landlord shall be employed by Tenant or permitted to enter the Building for the purpose of cleaning the same. Tenant shall not cause any unnecessary labor by carelessness or indifference to the good order and cleanliness of the Premises. Landlord shall not in any way be responsible to any Tenant for any loss of property on the Premises, however occurring, or for any damage to any Tenant's properly by the janitor, any of Landlord's Agents or any other person.

6. Landlord will furnish Tenant, free of charge, two (2) keys to each door lock in the Premises. Landlord may make a reasonable charge for any additional keys. Tenant shall not make or have made additional keys, and Tenant shall not alter any lock or install a new additional lock or bolt on any door of its Premises. Tenant, upon the termination of its tenancy, shall deliver to Landlord the keys of all doors which have been furnished to Tenant, and in the event of loss of any keys so furnished, shall pay Landlord therefor.

7. HVAC service shall be provided to the Premises Mondays through Fridays, except Holidays, from 8:00 a.m. to 6:00 p.m., ("Building Standard Hours"). Landlord shall provide HVAC service at times in addition to Building Standard Hours ("After-Hours HVAC"); provided, however, Tenant gives Landlord notice prior to 1:00 p.m. on the same day such After-Hours HVAC is required with respect to service on Business Days and prior to 1:00 pm on the immediately preceding Business Day with respect to After-Hours HVAC on non-Business Days. The charge to Tenant for After-Hours HVAC should be at Landlord's then-standard hourly rate in effect from time to time for After-Hours HVAC; provided, however there will be no charge for After-Hours HVAC on Saturdays, except Holidays, between 8:00 AM and 1:00 PM. (although Tenant must request same as set forth in the preceding sentence). Any HVAC service on Holidays shall be considered After-Hours HVAC.

8. If Tenant requires telegraphic, telephonic, computer circuits, burglar alarm or similar services, it shall first obtain, and comply with, Landlord's instructions for their installation, and shall pay the entire cost of such installation(s).

9. Tenant shall not place a load upon t any floor of the Premises which exceeds the load per square foot which such floor was designed to carry and which is allowed by Governmental Requirements. Landlord shall have the right to prescribe the weight, size and position of all equipment, materials, furniture or other property brought into the Building. Heavy objects shall, if considered necessary by Landlord, stand on such platforms as determined by Landlord to be necessary to properly distribute the weight. Business machines and mechanical equipment belonging to Tenant, which cause noise or vibration that may be transmitted to the structure of the Building or to any space in the Building or to any other tenant in the Building, shall be placed and maintained by Tenant, at Tenant's expense, on vibration eliminators or other devices sufficient to eliminate noise or vibration. The persons employed to move such equipment in or out of the Building must be acceptable to Landlord. Landlord will not be responsible for loss of, or damage to, any such equipment or other property from any cause, and all damage done to the Building by maintaining or moving such equipment or other property shall be repaired at the expense of Tenant.

10. Tenant shall not use or keep in the Premises any kerosene, gasoline or inflammable or combustible fluid or material other than those limited quantities permitted by the Lease. Tenant shall not use or permit to be used in the Premises any foul or noxious gas or substance, or permit or allow the Premises to be occupied or used in a manner offensive or objectionable to Landlord or other occupants of the Building by reason of noise, odors or vibrations nor shall Tenant bring into or keep in or about the Premises any birds or animals.

11. Tenant shall not use any method of heating or air-conditioning other than that supplied by Landlord or approved by Landlord in writing as provided in the Lease.

12. Tenant shall not waste any utility provided by Landlord and agrees to cooperate fully with Landlord to assure the most effective operation of the Building's heating and air-conditioning and to comply with any governmental energy-saving rules, laws or regulations of which Tenant has actual notice.

13. Landlord reserves the right, exercisable without notice and without liability to Tenant, to change the name and street address of the Building.

14. Landlord reserves the right to exclude from the Building between the hours of 6 p.m. and 7 a.m. the following day, or such other hours as may be established from time to time by Landlord, and on Sundays and Holidays, any person unless that person is known to the person or employee in charge of the Building and has a pass or is properly identified. Tenant shall be responsible for all persons for whom it requests passes and shall be liable to Landlord for all acts of such persons. Landlord shall not be liable for damages for any error with regard to the admission to or exclusion from the Building of any person. Landlord reserves the right to prevent access to the Building in case of invasion, mob, riot, public excitement or other commotion by closing the doors or by other appropriate action.

15. Tenant shall close and lock the doors of its Premises and entirety shut off all water faucets or other water apparatus, and electricity, gas or air outlets before Tenant and its employees leave the Premises. Tenant shall be responsible for any damage or injuries sustained by other tenants or occupants of the Building or by Landlord for noncompliance with this rule.

16. Tenant shall not obtain for use in the Premises ice, drinking water, food, beverage, towel or other similar services, except at such hours and under such regulations as may be fixed by Landlord.

17. The toilet rooms, toilets, urinals, wash bowls and other apparatus shall not be used for any purpose other than that for which they were constructed and no foreign substance of any kind whatsoever shall be deposited in them. The expenses of any breakage, stoppage or damage resulting from the violation of this rule shall be borne by Tenant if it or its employees or invitees shall have caused it.

18. Tenant shall not sell, or permit the sale at retail, of newspapers, magazines, periodicals, theater tickets or any other goods or merchandise to the general public in or on the Premises, Tenant shall not make any room-to-room solicitation of business from other tenants in the Building. Tenant shall not use the Premises for any business or activity other than that specifically provided for in the Lease.

19. Tenant shall not install any radio or television antenna, loudspeaker or other device on the roof or exterior walls of the Building. Tenant shall not interfere with radio or television broadcasting or reception from or in the Building or elsewhere.

20. Tenant shall not mark, drive nails, screws or drill into the partitions, woodwork or plaster or in any way deface the Premises, except that Tenant shall be permitted to hang pictures and shelving provided that Tenant repairs any holes or other damage caused by such hanging prior to the expiration or sooner termination of the Lease and further provided that Tenant shall be liable, and indemnify Landlord under Section 4.12 of the Lease, for any and all damage and personal injuries suffered or incurred by anyone in connection with such work and/or as a result of any such pictures or shelving. Landlord reserves the right to direct electricians as to where and how telephone and telegraph wires are to be introduced to the Premises. Tenant shall not cut or bore holes for wires. Tenant shall not affix any floor covering to the floor of the Premises in any manner except as approved by Landlord. Tenant shall repair any damage resulting from noncompliance with this rule.

21. Tenant shall not install, maintain or operate upon the Premises any vending machine without the written consent of Landlord, which consent shall not be unreasonably withheld, conditioned or delayed provided that such machines are solely for the use of Tenant and its employees.

22. Canvassing, soliciting and distribution of handbills or any other written material, and peddling in the Building or Land are prohibited, and Tenant shall cooperate to prevent the same.

23. Landlord reserves the right to exclude or expel from the Building and Land any person who, in Landlord's judgment, is intoxicated, under the influence of liquor or drugs or in violation of any of these Rules and Regulations.

24. Tenant shall store all of its trash and garbage within the Premises. Tenant shall not place in any trash box or receptacle any material, which cannot be disposed of in the ordinary and customary manner of trash and garbage disposal. All garbage and refuse disposal shall be made in accordance with directions issued from time to time by Landlord.

25. The Premises shall not be used for lodging or any improper or immoral or objectionable purpose. No cooking shall be done or permitted by Tenant, except that use by Tenant of Underwriters' Laboratory approved equipment for brewing coffee, tea, hot chocolate and similar beverages shall be permitted; provided that, such equipment and its use is in accordance with all Governmental Requirements.

26. Tenant shall not use in the Premises or in the public halls of the Building any hand truck except those equipped with rubber tires and side guards or such other material-handling equipment as Landlord may approve. Tenant shall not bring any other vehicles of any kind into the Building.

27. Without the prior written consent of Landlord, Tenant shall not use the name of the Building in connection with or in promoting or advertising the business of Tenant except as Tenant's address.

28. Tenant shall comply with all safety, fire protection and evacuation procedures and regulations established by Landlord or any governmental agency

29. Tenant assumes any and all responsibility for protecting the Premises from theft, robbery and pilferage, which includes keeping doors locked and other means of entry to the Premises closed.

30. The requirements of Tenant will be attended to only upon appropriate application to the Manager of the Building by an authorized individual. Employees of Landlord are not required to perform any work or do anything outside of their regular duties unless under special instructions from Landlord, and no employee of Landlord is required to admit Tenant to any space other than the Premises without specific instructions from Landlord.

31. Tenant shall not park its vehicles in any parking areas designated by Landlord as areas for parking by visitors to the Building or Land. Tenant shall not leave vehicles in the parking areas overnight nor park any vehicles in the Building parking areas other than automobiles, motorcycles, motor driven or nonmotor driven bicycles or four-wheeled trucks.

32. Landlord may waive any one or more of these Rules and Regulations for the benefit of Tenant or any other tenant, but no such waiver by Landlord shall be construed as a waiver of such Rules and Regulations in favor of any other person, nor prevent Landlord from thereafter revoking such waiver and enforcing any such Rules and Regulations against any or all of the tenants of the Building.

33. These Rules and Regulations are in addition to, and shall not be construed to in any way modify or amend, in whole or in part, the covenants and conditions of any lease of premises in the Building. If any provision of these Rules and Regulations conflicts with any provision of the Lease, the terms of the Lease shall prevail.

34. Landlord reserves the right to make such other and reasonable Rules and Regulations as, in its judgment, may from time to time be needed for safety and security, the care and cleanliness of the Building and Land and the preservation of good order in the Building. Tenant agrees to abide by all the Rules and Regulations stated in this exhibit and any additional rules and regulations, which are so made by Landlord.

35. Tenant shall be responsible for the observance of all of the foregoing rules by Tenant and Tenant's Agents.

EXHIBIT F to Lease

LETTER OF CREDIT REQUIREMENTS

1. The letter of credit shall be clean, irrevocable and unconditional.

2. The letter of credit shall be in the amount specified in the Lease paragraph captioned ["Lease Security Provisions"].

3. The letter of credit shall be issued in favor of:

[PROPERTY OWNING ENTITY]
c/o NewTower Trust Company
Attn: President
7315 Wisconsin Avenue, Suite 350 West
Bethesda, MD 20814

4. The letter of credit shall be effective immediately on its issuance.

5. The letter of credit shall either be issued by a national bank which is a member of the New York Clearing House and which has a banking office dedicated to the administration and payment of letters of credit in a location approved by Landlord. The issuing bank must have been assigned by (a) Standard & Poors Investor Services a Counterparty Credit Rating of BBB+ or better, and/or (b) a Bauer Financial Star Rating of 3.5 stars or better. The identity of the issuing bank and of any confirming bank shall be reasonably satisfactory to Landlord.

6. The letter of credit shall have an expiration date no earlier than the first anniversary of the date of its issuance and shall provide for its automatic renewal from year to year unless terminated by the issuing bank by notice to Landlord given not less than sixty (60) days prior to its expiration date. Notice to Landlord shall be in writing, made by (i) United States Postal Service, certified mail, return receipt requested; or (ii) reputable express or courier service. Notice to Landlord shall be addressed to the following parties:

[PROPERTY OWNING ENTITY]
c/o NewTower Trust Company
Attn: President
7315 Wisconsin Avenue, Suite 350 West
Bethesda, MD 20814
Facsimile: 240.235.9961

And to:

[PROPERTY OWNING ENTITY]
c/o Bentall Kennedy (U.S.) Limited Partnership
Attn: LOC Administrator
1215 Fourth Avenue, Suite 2400

Seattle, WA 98161
Facsimile: 206.682.4769

And to:

[PROPERTY OWNING OWNING]
c/o Bentall Kennedy (U.S.) Limited Partnership
Attn: Product Sector Head – Asset Management
7315 Wisconsin Avenue, Suite 200 West
Bethesda, MD 20814
Facsimile: 301.656.9339

And to:

[PROPERTY OWNING LLC]
c/o [PROPERTY MANAGER]
[ADDRESS OF PROPERTY MANAGER]

The final expiration date of the letter of credit and all renewals of it shall be no earlier than sixty (60) days following the end of the [Lease Term].

7. The letter of credit may be drawn at the designated banking office specified in the letter of credit of the issuing bank. The letter of credit shall allow for draws to be made at sight on a draft drawn by [PROPERTY OWNING ENTITY], any officer of [NewTower Trust Company [MEPT OR EDGEMOOR ONLY] or Bentall Kennedy (U.S.) G.P., LLC [MEPT/EDGEMOOR OR SEPAC]], or by facsimile at the facsimile number set forth therein, and the issuing bank will determine honor or dishonor on the basis of presentation by facsimile alone, and will not require the examination of originals. The draft shall be approved as to form by Landlord.

8. The letter of credit must allow for one draw in the whole amount or multiple partial draws. Landlord shall not be required to deliver any certificate, affidavit or other writing to the issuer expressing the basis for the draw as a condition to any draw.

9. The letter of credit shall be transferable and any applicable transfer fees shall by paid for by Tenant.

10. The letter of credit shall provide the address of the issuing bank for sending notices after its issuance and that Beneficiary shall only be required to submit a notice letter to issuing bank at the address specified therein for any change of address of the Beneficiary.

11. The letter of credit shall provide that if the original letter of credit is lost, stolen or destroyed while in the Landlord's possession, then issuing bank shall provide Landlord with a duplicate original of the letter of credit upon presentation of a copy of the letter of credit and signed original of an affidavit of lost letter of credit in the form attached to the letter of credit.

12. The letter of credit shall be governed by the International Standby Practices (ISP 98 published by the International Chamber of Commerce.

13. Issuer shall waive all waiting periods whether under Uniform Commercial Code Section 5-112 or otherwise.

14. The letter of credit shall otherwise be in such form and shall be subject to such requirements as Landlord may reasonably require.

EXHIBIT G to Lease

RIGHT OF FIRST OFFER

Subject to then-existing renewal or expansion options or other preferential rights of other tenants, and provided no Event of Default then exists, Landlord shall, prior to offering any of the portion of the eighth floor of the Building (the "Offer Space") to any party (other than the then-current tenant or occupant therein), first offer to lease to Tenant the Offer Space in an "**AS-IS**" condition; such offer shall (a) be in writing, (b) specify the part of the Offer Space being offered to Tenant hereunder (the "**Designated Offer Space**"), and (c) specify the lease terms for the Designated Offer Space, including the rent to be paid for the Designated Offer Space and the date on which the Designated Offer Space shall be included in the Premises (the "**Offer Notice**"). Tenant shall notify Landlord in writing whether Tenant elects to lease the entire Designated Offer Space on the terms set forth in the Offer Notice, within ten days after Landlord delivers to Tenant the Offer Notice. If Tenant timely elects to lease the Designated Offer Space, then Landlord and Tenant shall execute an amendment to this Lease, effective as of the date the Designated Offer Space is to be included in the Premises, on the terms set forth in the Offer Notice and, to the extent not inconsistent with the Offer Notice terms, the terms of this Lease; however, Tenant shall accept the Designated Offer Space in an "**AS-IS**" condition and Landlord shall not provide to Tenant any allowances (e.g., moving allowance, construction allowance, and the like) or other tenant inducements except as specifically provided in the Offer Notice. Notwithstanding the foregoing, if, prior to Landlord's delivery to Tenant of the Offer Notice, Landlord has received an offer to lease all or part of the Designated Offer Space from a third party (a "**Third Party Offer**") and such Third Party Offer includes space in excess of the Designated Offer Space, Tenant must exercise its rights hereunder, if at all, as to all of the space contained in the Third Party Offer. Notwithstanding anything herein to the contrary, Landlord shall have no obligation to offer the Offer Space or any portion thereof to Tenant under this Exhibit unless and until the entire Offer Space has first been leased to and occupied by another tenant.

If Tenant fails or is unable to timely exercise its right hereunder with respect to the Designated Offer Space, then such right shall lapse, time being of the essence with respect to the exercise thereof (it being understood that, except as provided below, Tenant's right hereunder is a one-time right only as to each Designated Offer Space the first time it is offered to Tenant hereunder), and Landlord may lease all or a portion of the Designated Offer Space to third parties on such terms as Landlord may elect. Landlord shall not be obligated to re-offer the Designated Offer Space to Tenant unless Landlord is willing to lease the Designated Offer Space to a third party on substantially more favorable terms than the terms contained in the Offer Notice rejected by Tenant (taking into account all of the terms of the Offer Notice and the terms of the other lease offered). Tenant may not exercise its rights under this Exhibit if an Event of Default exists or Tenant is not then occupying the entire Premises. For purposes hereof, if an Offer Notice provides for an expansion, right of first refusal, or other preferential right to lease some of the remaining portion of the Offer Space, then such remaining portion of the Offer Space shall thereafter be excluded from the provisions of this Exhibit. In no event shall Landlord be obligated to pay a commission with respect to any space leased by Tenant under this Exhibit, and Tenant and Landlord shall each indemnify the other against all costs, expenses, attorneys' fees, and other liability for commissions or other compensation claimed by any broker or agent claiming the same by, through, or under the indemnifying party.

Tenant's rights under this Exhibit shall terminate if (a) this Lease or Tenant's right to possession of any of the Premises is terminated, (b) Tenant assigns any of its interest in this Lease or sublets any portion of the Premises, or (c) less than three (3) full calendar years remain in the initial Term of this Lease.

EXHIBIT H to Lease

EXTENSION OPTION

Provided that (i) Tenant has not assigned this Lease (except to an Affiliate pursuant to Section 4.16.8 or to a resulting or surviving entity or transferee pursuant to Section 4.16.9) and (ii) not more than 10% of the Premises is then subject to a sublease (whether the term of the sublease has commenced or is to be commenced thereafter), Tenant shall have the right to extend the Lease Term (the "Extension Option") for the entire Premises for one (1) additional period of five (5) years (the "Extension Term"), the Extension Term commencing on the day after the last day of the initial Lease Term, if:

1. Landlord receives notice of exercise (the "Initial Extension Notice") not less than fifteen (15) full calendar months prior to the expiration of the initial Lease Term; and

2. No Event of Default exists at the time that Tenant delivers the Initial Extension Notice.

The Base Rent rate per rentable square feet of floor area of the Premises payable during the Extension Term shall be 100% of the Prevailing Market rate (as defined below in this Exhibit) for the Premises for the Extension Term.

If Tenant timely exercises the Extension Option, the Lease Term shall thereafter expire on the last day of the Extension Term.

Within thirty (30) days after Landlord's receipt of the Initial Extension Notice, Landlord shall advise Tenant of Landlord's determination of the Prevailing Market rate for the Premises for the Extension Term. Tenant, within thirty (30) days after the date on which Landlord advises Tenant of Landlord's determination of the Prevailing Market rate for the Premises for the Extension Term, shall either (i) if Tenant agrees with Landlord's determination, give Landlord final binding written notice ("Binding Notice") of Tenant's exercise of the Extension Option, or (ii) if Tenant disagrees with Landlord's determination, provide Landlord with written notice of rejection (the "Rejection Notice"). If Tenant fails to provide Landlord with either a Binding Notice or Rejection Notice within such thirty (30) day period, then Tenant shall be deemed to have given Landlord a Binding Notice. If Tenant provides Landlord or is deemed to have provided Landlord, as aforesaid, with a Binding Notice, then Landlord and Tenant shall enter into the Extension Amendment (as hereinafter defined) for the Extension Term in accordance with the following provisions of this Exhibit. If Tenant provides Landlord with a Rejection Notice, then Landlord and Tenant shall work together in good faith to agree upon the Prevailing Market rate for the Premises for the Extension Term. Upon agreement, Landlord and Tenant shall enter into the Extension Amendment for the Extension Term in accordance with the following provisions of this Exhibit. Notwithstanding the foregoing, if Landlord and Tenant fail to agree upon the Prevailing Market rate for the Premises for the Extension Term within ninety (90) days after Landlord's receipt of the Initial Extension Notice, then the Prevailing Market rate for the Premises for the Extension Term shall be determined in accordance with the arbitration procedures set forth below.

If Tenant properly exercises the Extension Option, Landlord shall prepare an amendment to this Lease (the "Extension Amendment") to reflect changes to the monthly Base Rent, the Base Year and Tax Base Year (as determined in accordance with the foregoing provisions of this Exhibit), the Lease Term and other appropriate terms (which require modification in connection with the determination of the Prevailing Market rate and the exercise of the Extension Option) for the Extension Term. The Extension Amendment for the Extension Term shall be sent to Tenant within a reasonable time after the Prevailing Market rate for the Extension Term is determined, as aforesaid, and Tenant shall execute and return the Extension Amendment to Landlord within thirty (30) days after Tenant's receipt of same; but an otherwise timely exercise of the Extension Option shall be fully effective whether or not the Extension Amendment is executed.

The Base Year for the Extension Term shall be the first full calendar year of the Extension Term and the Tax Base Year for the Extension Term shall be the first full fiscal year of the Extension Term.

For the purposes of this Exhibit, the "Prevailing Market rate" shall mean, with respect to the Extension Term, the fair market annual rate per square foot of rentable area that a tenant would pay for leasing commercial office space comparable to the Premises located in the Seaport District of the City of Boston, taking into consideration such factors as (i) the rentable square feet of floor area of the Premises; (ii) the length of the Extension Term; (iii) whether Landlord is granting Tenant any allowance or credit for tenant improvements or refurbishment of the Premises; (iv) any increases or decreases or possible increases or decreases in fixed rents during extended terms included in comparable leases, including adjustments made annually, based on (a) a flat rate for a period of years with periodic flat rate increases thereafter, or (b) changes in consumer price, cost of living or similar indices or periodic market adjustments, or (c) operating expense or other rent escalation provisions; (v) any rent inducements or concessions then being included in comparable leases; (vi) the location and quality of the Building; (vii) Tenant's credit standing; and (viii) the Base Year and the Tax Base Year for the Extension Term.

Landlord and Tenant, within thirty (30) days after Landlord's receipt of the Initial Extension Notice, shall each simultaneously submit to the other, in a sealed envelope, its good faith determination of the Prevailing Market rate (collectively referred to as the "Determinations"). If the higher of the Determinations is not more than 110% of the lower of the Determinations, then the Prevailing Market rate shall be the average of the two Determinations. If the Prevailing Market rate is not resolved by the exchange of the Determinations, then, within twenty (20) days after the exchange of the Determinations, Landlord and Tenant shall each select a commercial real estate broker with at least ten (10) years' experience in the Seaport District of the City of Boston with working knowledge of current rental rates and practices to determine which of the two (2) Determinations most closely reflects the Prevailing Market rate. Upon such selection, Landlord and Tenant shall each provide to their respective brokers the applicable provisions of this Lease necessary for such determination, including, without limitation, the applicable definitions and criteria ("Lease Provisions"). Landlord's and Tenant's brokers shall work together in good faith to agree upon which of the two (2) Determinations most closely reflects the Prevailing Market rate. The Determination chosen by such brokers shall be binding on both Landlord and Tenant as the Prevailing Market rate. If either Landlord or Tenant fails to appoint a broker within the twenty (20) day period referred to above, the broker appointed by the other party shall be the sole broker for the purposes hereof. If the two (2) brokers cannot agree upon which of the two (2) Determinations most closely reflects the Prevailing Market rate within thirty (30) days after the expiration of such twenty (20) day period, then, within ten (10) days after the expiration of such thirty (30) day period, the two (2) brokers shall select a third broker meeting the aforementioned criteria. Once the third broker has been selected as provided for above, then Landlord and Tenant shall provide the two (2) Determinations to the third broker and, as soon thereafter as practicable but in any case within thirty (30) days after the selection of the third broker, the third broker shall make its determination of which of the two (2) Determinations most closely reflects the Prevailing Market rate and such Determination shall be binding on both Landlord and Tenant as the applicable Base Rent. If the third broker believes that expert advice would materially assist him, he may retain one or more qualified persons to provide such expert advice. The parties shall share equally in the costs of the third broker and of any experts retained by such third broker. Any fees of any broker, counsel or experts engaged directly by Landlord or Tenant, however, shall be borne by the party retaining such broker, counsel or expert.

Exhibit H

EXHIBIT I to Lease

JANITORIAL SPECIFICATIONS

MAIN LOBBY

Daily*

- Empty trash receptacles; replace liners (as necessary)
- Vacuum walk-off mats and carpeted areas
- Spot-clean carpets with approved spotter
- Sweep and damp-mop hard-surface floors
- Clean glass—includes doors, windows within reach of cleaner, and floor directories
- Spot-clean and sanitize horizontal and vertical surfaces; remove fingerprints, smudges, and stains
- Wipe down and polish elevator doors

Weekly

- Dust horizontal surfaces—includes moldings, baseboards, railings, charts, pictures, window ledges, sills, and other surfaces within reach of cleaner.

Monthly

- High-dust horizontal and vertical surfaces—includes lobby, tops of vestibules, and other surfaces beyond reach of cleaner

Quarterly

- Carpet Clean Main Entrance
  Upon request as extra service

* *Daily = Five (5) weekdays a week (except Holidays)*

ELEVATORS

Daily

- Clean interior walls, doors, ceiling, and bright work
- Clean and polish exterior doors, trim, and track
- Vacuum carpeted floors
- Spot-clean carpets with approved spotter

Quarterly

- Carpet Clean elevator cabs
  Upon request as extra service

CORRIDORS, STAIRS, COMMON AREA

Daily

- Vacuum carpeted floors
- Spot-clean carpets with approved spotter
- Spot-clean and sanitize horizontal and vertical surfaces; remove fingerprints, smudges, and stains
- Police stairwell for trash

Weekly

- Dust railings, ledges, fixtures, and fire extinguishers
- Damp-mop stairs

Quarterly

- Carpet Clean Main Entrance
  Upon request as extra service

** Daily = Five (5) weekdays a week (except Holidays)*

Exhibit I

RESTROOMS

Daily

- Empty trash and feminine receptacles; replace liners (as necessary)
- Clean and polish stainless steel surfaces
- Refill paper and hand-soap dispensers
- Clean and sanitize urinals, sinks, toilets, and shower stalls o Polish mirrors and chrome fittings
- Sweep and damp-mop floors using germicidal solution
- Spot-clean walls and partitions
- Dust horizontal and vertical surfaces

Quarterly

- Machine-scrub restroom floors using germicidal solution
  Upon request as extra service

* *Daily = Five (5) weekdays a week (except Holidays)*

TENANT OFFICE AREA

Daily

- Empty trash receptacles; replace liners (as necessary)
- Remove articles labeled “throw out”
- Sweep and damp-mop hard surface floors
- Vacuum carpeted floors
- Spot-clean carpets with approved spotter
- Straighten reception areas—neaten magazines, polish glass tables, etc.

Weekly

- Dust horizontal surfaces—includes, pictures, window sills, tops of cubicles and other surfaces within reach of cleaner.

Bi-Annually

- Dust heating and A/C diffusers

TENANT KITCHENETTES

Daily

- Empty trash receptacles; replace liners (as necessary)
- Clean and sanitize sinks, tables, countertops; wipe dry
- Sweep and damp-mop floors using germicidal solution

Yearly

- Strip and refinish VCT tiled floor surfaces using two (2) coats of seal and three (3) coats of finish
  Upon request as extra service

* *Daily = Five (5) weekdays a week (except Holidays)*

TENANT CONFERENCE ROOMS

Daily

- Empty trash receptacles; replace liners (as necessary)
- Remove articles labeled “throw out”
- Vacuum carpeted area
- Spot-clean carpets with approved spotter.
- Spot-clean and sanitize horizontal and vertical surfaces, walls, switch plates, and doors; remove smudges and stains
- Clean and polish conference table
- Reposition furniture

Weekly

- Dust window ledges, sills, doors, door frame, wall hangings, wood trim, baseboards, moldings, ledges, and horizontal and vertical surfaces. Bi-Annually
- Dust heating and A/C diffusers

* *Daily = Five (5) weekdays a week (except Holidays)*

RECEIVING AREA

Daily

- Sweep and mop floors
- Wash walls and doors

* *Daily = Five (5) weekdays a week (except Holidays)*

STAIRS, BACK LOBBY

Daily

- Damp-mop and vacuum stairs and back entrance floor
- Clean both sides of glass back door
- Dust railings and ledges
- Polish brass

Weekly

- Dust railings, ledges, fixtures, and fire extinguishers
- Edge-vacuum carpeted stairs
- Damp-mop stairwells from top to bottom

* *Daily = Five (5) weekdays a week (except Holidays)*

Specialty Services

In addition to your janitorial needs, DCS also offers the following:

- 24-hour emergency cleaning—fire, flood, etc.
- Anti-static treatment
- Carpet shampooing
- Computer room cleaning
- Facility/office services personnel—day porter/matron service, elevator operators, shipping/receiving, restroom attendants, light fixture porters
- Furniture cleaning, polishing, restoration
- Furniture moving
- Graffiti removal
- Landscaping
- Leather upholstery cleaning
- Light bulb replacement
- Floor care—marble, tile, wood
- Metal restoration and maintenance
- Parking lot maintenance
- Pest control
- Power/pressure cleaning—sidewalks, building facades
- Recycling programs
- Snow removal
- Specialty products—mats, cleaning supplies, paper products, etc.
- Trash removal
- Upholstery and fabric partition cleaning
- Window cleaning

Exhibit I

EXHIBIT J to Lease

HVAC SPECIFICATIONS

The leaving air temperature from the AHUs will be 56.5°F with an outside air temperature of 91°F dry bulb and 73°F wet bulb. The interior conditions will be 76°F dry bulb and 50% relative humidity at those summer outside air conditions and 72°F dry bulb at the winder outside air temperature of 8°F dry bulb

EXHIBIT K to Lease

MANDATORY TENANT LEED DESIGN, CONSTRUCTION AND PERFORMANCE REQUIREMENTS

Section 1A. Mandatory Leadership in Energy and Environmental Design (LEED) Tenant Compliance. Tenant shall adhere to the following design and construction requirements in support of and in compliance with the LEED-CS prerequisites and credits satisfied by *the* base-building scope of work:

a. WEc3 Water Use Reduction: All tenants are required to install efficient flush/flow fixtures that do not exceed the flush/flow rates of the base-building fixtures shown below:

Fixture Type	Max Flush/Flow Rate:
Water Closet:	1.28 gpf
Urinal:	0.125 gpf
Lays:	0,5 gpm (metered)
Kitchen Sink:	2.2 gpm
Showers:	1.5 gpm

b. EAp3 Fundamental Refrigerant Management: Any additional work that is executed by Tenant must adhere to "zero *use of chloroffuorocarbon (CFC)-based refrigerants in new base building healing, ventilating, air conditioning and refrigeration (HVAC&R) systems. Small HVAC units (defined as containing less than 0.5 pounds (228 grams) of refrigerant) and other equipment, such as standard refrigerators, small water coolers and any other equipment that contains less than 0.5 pounds (228 grams) of refrigerant, are not considered part of the base building system and are not subject to the requirements of this prerequisite'.*

c. EAcl Optimize Energy Performance/Energy Conservation Measures

Mandatory Tenant Energy Conservation Measures (ECMs): Tenant's fit up design must comply with the following performance requirements to support and align with the Energy Conservation Measures (ECMs) incorporated in the base-building Core and Shell building systems and building envelope design and the LEED-CS whole building energy model.

Landlord shall supply electricity to the Premises, lighting and, normal office machines at base building standard receptacles should meet a demand requirement not to exceed 5 watts per rentable square foot for lighting and outlets, and Tenant agrees in its use of the Premises (i) not to exceed such requirements, and (ii) that its total connected lighting load it will not exceed the maximum from time to time permitted under applicable governmental regulations.

Lighting Power: Tenants are required to comply with lighting power density (Watts/sf) requirements as per Sections 9.5-9.6 of ASHRAE 90.1-2013. The applicable LPD requirement for office space type is 0,82 W/SF when using the building Area Method.

Lighting Controls: Office tenants are required to provide the following lighting controls:

Automatic Lighting Controls: Tenants are required to install lighting controls, including automatic lighting shut-offs, vacancy sensors, and daylighting controls as per Section 9.4 of ASHRAE 90.12013.

Occupancy Sensors on Lighting: Occupancy sensors must be provided for light control in all applicable areas within tenant spaces.

Fan Powered Boxes: The base building systems are designed such that the tenant fit-outs are required to include the installation of fan powered boxes in perimeter spaces.

d. IEQp1 Minimum Air Quality Performance: Ail mechanical ventilation systems installed by the Tenant must *'meet the minimum requirements of Sections 4 through 7 of ASHRAE Standard 62.1-2007, Ventilation for Acceptable indoor Air Quality. Mechanical ventilation systems must be designed using the ventilation rate procedure or the applicable local code, whichever is more stringent."*

e. lEQp2 Environmental Tobacco Smoke Control (ETS): Tenant is required to *'Prohibit smoking in the building. Prohibit on-property smoking within 25* feet (8 *meters) of entries, outdoor air intakes and operable windows. Provide signage to allow smoking in designated areas, prohibit smoking in designated areas or prohibit smoking on the entire property.'*

IEQc7.1 Thermal Comfort Design: All tenants are required to, *'design heating ventilation and air conditioning systems and the building envelope to meet the requirements of ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy. Demonstrate design compliance in accordance with Section 6.1.1 documentation."* Furthermore, tenant spaces such as restaurants or fitness centers that are anticipated to have a time-average metabolic rate above 2.0 MET need to *"meet the cooling/humidity temperature set points for spaces with MET levels of 2.0. Time-weighted* average *metabolic rates should* be *determined based on guidance in ASHRAE 55-2004, Normative Appendix A"*

55 Cambridge Parkway, Suite 100
Cambridge, MA 02142
www.akceatx.com

April 17, 2018

Exhibit 10.2

Sarah Boyce
55 Cambridge Parkway, Suite 100
Cambridge, MA 02142

Dear Sarah,

It is my great pleasure to extend to you an offer to join Akcea Therapeutics, Inc., as President, reporting to me. In this position, you will receive an annual salary of $485,000.00 and be eligible for an annual increase to your base salary in accordance with our annual merit process. You are also eligible for an incentive bonus targeted at 45% of your base salary under our current Management by Objectives (MBO) program. Employees who join the company after October 1st of any given year will be eligible to participate in the MBO program the following calendar year.

I am also pleased to advise you that the Akcea Board of Directors has approved awarding to you 1,000,000 Akcea Stock Options and $500,000 in Akcea RSUs. These Akcea Options and RSUs will be granted and vest in accordance with your Grant Notice Agreement.

You also have the opportunity to participate in our employee benefits program. Please feel free to contact Martha Bradford at 617-207-0199 if you have any questions.

This offer is contingent on your signing in the space provided below, and signing the *attached Employee Confidential Information, Inventions Assignment, Non-Competition and Non-Solicitation Agreement.*

We are very pleased that you will be joining us, and we look forward to working with you! We anticipate a start date as set forth below your signature.

Sincerely,

/s/ Paula Soteropoulos

Paula Soteropoulos
Chief Executive Officer

Accepted and agreed: */s/ Sarah Boyce*

Date Accepted: April 17, 2018

Start Date: April 17, 2018

Exhibit 10.3

SECOND AMENDMENT OF LEASE

This SECOND AMENDMENT OF LEASE (this "Amendment") dated as of the 18th day of May, 2018 by and between 55 CAMBRIDGE PARKWAY, LLC, a Delaware limited liability company, having an address c/o Invesco Real Estate, 1166 Avenue of the Americas, New York, New York 10036, as Landlord (the "Landlord"), and AKCEA THERAPEUTICS, INC., a Delaware corporation, having an address at 55 Cambridge Parkway, Cambridge, Massachusetts 02142, as Tenant (the "Tenant").

BACKGROUND

Landlord and Tenant are holders of the landlord's and tenant's interests, respectively, under a Office Lease Agreement dated March 25, 2015 (and executed by Landlord on April 6, 2015) (the "Original Lease"), as amended by an Amendment of Lease dated as of February 1, 2016 (the "First Amendment") for approximately 6,114 rentable square feet of space located on the first (1st) floor of the West Wing of the Building (the "Building") located at 55 Cambridge Parkway, Cambridge, Massachusetts (the "Premises") (as amended, the Original Lease shall be referred to herein as the "Lease"). The Lease Term is currently scheduled to expire on July 31, 2018. Tenant desires to holdover in its possession of the Premises for the months of August and September 2018. Landlord agrees to permit Tenant to holdover in its occupancy of the Premises for the months of August and September, 2018 pursuant to the terms of this Amendment. Capitalized terms not defined herein shall have the same meaning ascribed to them in the Lease.

W I T N E S S E T H:

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree to amend the Lease as follows:

1. Extension of Term for Two (2) Months. In order to accommodate Tenant's request to holdover in its possession of the Premises for the months of August and September, 2018, the Lease Term is hereby extended beyond July 31, 2018 for the period beginning on August 1, 2018 and ending on September 30, 2018 (such period shall be referred to herein as the "Agreed Holdover Period").

2. Tenant's Payment of Minimum Monthly Rent And Additional Rent Payments For Agreed Holdover Period. Tenant shall pay Minimum Monthly Rent for the Agreed Holdover Period at the holdover rate of $51,204.75 per month, which payment shall be made to Landlord on or before the first day of each calendar month of the holdover period (August 1, 2018 and September 1, 2018). Tenant shall also be obligated to make the additional rent payments for excess Operating Costs and Taxes for the Agreed Holdover Period under the provisions of Article 5 of the Lease. Tenant shall not be liable for any consequential damages as a result of holding over in possession of the Premises during the Agreed Holdover Period.

3. Ratification of Lease Provisions. Except as otherwise expressly amended, modified and provided for in this Amendment, Tenant hereby ratifies all of the provisions, covenants and conditions of the Lease, and such provisions, covenants and conditions shall be deemed to be incorporated herein and made a part hereof and shall continue in full force and effect.

4. Entire Amendment. This Amendment contains all the agreements of the parties with respect to the subject matter hereof and supersedes all prior dealings between the parties with respect to such subject matter.

5. Binding Amendment. This Amendment shall be binding upon, and shall inure to the benefit of the parties hereto, and their respective successors and assigns.

6. Governing Law. This Amendment shall be governed by the laws of the Commonwealth of Massachusetts without regard to conflict of laws principles.

7. A uthority. Landlord and Tenant each warrant to the other that the person or persons executing this Amendment on its behalf has or have authority to do so and that such execution has fully obligated and bound such party to all terms and provisions of this Amendment.

8. No Reservation. Submission of this Amendment for examination or signature is without prejudice and does not constitute a reservation, option or offer, and this Amendment shall not be effective until execution and delivery by each of the parties hereto.

9. Counterparts. This Amendment may be executed simultaneously in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. An electronic mail or facsimile version of an executed original of this Agreement shall be deemed an original, and each of the parties hereto intends to be bound by an electronic mail or facsimile version of a fully-executed original hereof or of an electronic mail or facsimile version of executed counterpart originals hereof.

[SIGNATURES ON FOLLOWING PAGE]

EXECUTED under seal as of the date first above written.

LANDLORD:

55 CAMBRIDGE PARKWAY, LLC,
a Delaware limited liability company

By: Invesco ICRE Massachusetts REIT Holdings, LLC, Its sole member

By: */s/ Perry Chudnoff*
Name: Perry Chudnoff
Title: Vice President

TENANT:

AKCEA THERAPEUTICS, INC.,
a Delaware corporation

By: */s/ Jeffrey M. Goldberg*
Name: Jeffrey M. Goldberg
Title: COO
Hereunto Duly Authorized

EXHIBIT 31.1

CERTIFICATION

I, Paula Soteropoulos, certify that:

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

2. Based on my knowledge, this quarterly 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 quarterly report;

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

Dated: August 7, 2018

/s/ PAULA SOTEROPOULOS
Paula Soteropoulos
Chief Executive Officer

EXHIBIT 31.2

CERTIFICATION

I, Michael MacLean, certify that:

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

2. Based on my knowledge, this quarterly 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 quarterly report;

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

Dated: August 7, 2018

/s/ MICHAEL MACLEAN
Michael MacLean
Chief Financial Officer

Exhibit 32.1

CERTIFICATION

Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, Paula Soteropoulos, the Chief Executive Officer of Akcea Therapeutics, Inc., (the "Company"), and Michael MacLean, the Chief Financial Officer of the Company, each hereby certifies that, to the best of his or her knowledge:

1. The Company's Quarterly Report on Form 10-Q for the period ended June 30, 2018, to which this Certification is attached as Exhibit 32.1 (the "Periodic Report"), fully complies with the requirements of Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934, as amended; and

2. The information contained in the Periodic Report fairly presents, in all material respects, the financial condition of the Company at the end of the period covered by the Periodic Report and the results of operations of the Company for the period covered by the Periodic Report.

Dated: August 7, 2018

/s/ PAULA SOTEROPOULOS
Paula Soteropoulos
Chief Executive Officer

/s/ MICHAEL MACLEAN
Michael MacLean
Chief Financial Officer

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